

# THE BRITISH JOURNAL OF TUBERCULOSIS

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## ORIGINAL ARTICLES.

### LIGHT CLINICS AT TUBERCULOSIS DISPENSARIES.

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#### **The Lancashire Dispensary Scheme.**

THE Administrative County of Lancaster (population 1,811,000, area 1,050,889 acres) is divided into five large dispensary areas with an average population of 340,000. The medical and nursing staff for each of these areas consists of one consultant tuberculosis officer, two assistant tuberculosis officers, and four to seven tuberculosis health visitors. In addition, there are two small dispensary sub-areas, the consultant tuberculosis officers for which are the medical superintendents of the High Carley and Elswick sanatoria. The consultant tuberculosis officers of the five areas (with one exception) also act as visiting medical superintendent of a pulmonary hospital at which are treated patients from their own areas; in addition, each area has an X-ray apparatus and one or more light clinics. Two clinics were started in 1925 in dispensary areas 1 and 3 (Lancaster and Ashton-under-Lyne), and after experimental work for two years, light clinics—twelve in number—are at work in twelve dispensaries. This arrangement allows patients to be treated *near their homes* throughout the Administrative County.

#### **Actinotherapy: Equipment and Cost of Tuberculosis Clinics.**

As a result of the trial of six types of lamps, the following has been found the most suitable equipment for the county dispensary light clinics: Two long-flame carbon arc lamps for general treatment; one mercury vapour lamp (Jesioneck or Hanovia type) for general or local treatment; one Kromayer water-cooled quartz mercury vapour lamp

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for local treatment. The capital cost of the lamps and subsidiary equipment has averaged £210 per centre.

### Selection of Cases for Actinotherapy.

The selection of patients for light treatment is made by the consultant tuberculosis officer, who confers with the medical attendant; generally it is found that patients are anxious to avail themselves of this form of treatment. The cases chosen are almost entirely those suffering from non-pulmonary tuberculosis, and who are able to attend the dispensary. Occasionally cases are brought in spinal carriages or invalid chairs, but bedridden cases are sent to a hospital.

### Results of Treatment by Artificial Light.

The results of treatment of patients (all with active disease on commencing light treatment) at the dispensary light clinics are contained in the following table:

Form of Tuberculosis or Part of Body Affected.	Number of Cases on Treatment on 1/1/28.	Number of Cases Commencing Treatment in 1928.	Conditions of Patients whose Treatment Concluded in 1928.				Ceased Treatment for Other Reasons. <sup>1</sup>	Still under Treatment at end of 1928. <sup>2</sup>
			Quiescent and Apparently Cured.	Improved.	Stationary.	Worse		
Skin (lupus and scrofuloderma) ... ..	68	168	45	5	—	—	19	167
Adenitis with abscess-formation and skin involvement ... ..	27	140	52	4	3	—	24	84
Adenitis without softening ... ..	13	125	49	8	4	—	17	60
Bones, joints, and spine ... ..	27	75	19	2	1	—	23	57
Abdomen ... ..	11	28	15	3	1	1	6	13
Other non-pulmonary conditions ... ..	4	24	5	—	—	—	6	17
Pulmonary tuberculosis:								
Lungs—sputum positive ... ..	—	2	—	—	—	—	1	1
Lungs—sputum negative ... ..	—	2	—	—	—	—	2	—
Bronchial glands ... ..	1	5	4	1	—	—	1	—
Pleura ... ..	2	1	1	—	1	—	—	1
Pulmonary and non-pulmonary combined:								
Sputum positive and bones ... ..	—	2	—	—	—	—	—	2
Sputum positive and glands ... ..	—	1	—	—	—	—	—	1
Total for 1928 ... ..	153	573	190	23	10	1	99	403
		726 <sup>3</sup>						

<sup>1</sup> Includes: (1) Any patient who did not receive two months' treatment; (2) patients ceasing light treatment prematurely (*e.g.*, removals, unwilling or unable to continue); and (3) patients transferred to sanatoria or hospitals.

<sup>2</sup> Six centres only opened in 1928, and consequently sufficient time did not elapse in which to complete the treatment of the majority of patients.

<sup>3</sup> Adults, 419; children, 307.

The results of treatment of cases of non-pulmonary tuberculosis in 1928 may be considered satisfactory, particularly for two groups of cases, namely: (1) Skin (lupus and scrofulo-derma), and (2) adenitis with abscess formation and skin involvement. These two conditions are usually refractory to other forms of treatment.

The results of treatment of other types of disease—e.g., tuberculosis of the bones and joints, adenitis (without softening), etc.—have also in many cases been satisfactory, although the proof of efficiency of light treatment is not so striking, because those cases also respond fairly satisfactorily to other forms of treatment.

*Of the total patients attending the light clinics, 73 per cent. were able to continue their normal occupations during the course of treatment.*

The average gain in weight of the 190 patients who became "quiescent and apparently cured" was as follows: Adults, 3.05 lbs.; children, 3.20 lbs. The degree of pigmentation attained in these 190 patients was: Deep, 38; medium, 66; light, 54; none, 32.

#### **Photographic Records.**

In order to record the progress made by patients, photographs have been taken of a number of cases treated by light at commencement, during the course of treatment, and on termination. On page 6 are inserted photographs of five patients which have been selected as illustrating the effect of light treatment. The upper photograph shows the condition prior to commencing light treatment, and the lower photograph the appearance of the affected part on or towards the conclusion of treatment.

#### **Average Duration of Treatment.**

The duration of treatment has varied widely according to the type of non-pulmonary disease. Taking the several groups of cases in which the disease has become "quiescent and apparently cured" the average duration is as given in the table on page 4.

The frequency of attendance of patients depends on several factors, but at eight of the clinics the great majority of patients attend twice per week, and at the other centres thrice per week. One-fourth of the patients were assisted by the payment of railway, 'bus, or tram fares to the light clinic.

#### **Cost of Light Treatment.**

The average number of patients under treatment in any one week was 399, and the average cost per patient per week was 5d. for carbons and current, and 3s. 8d. for standing charges (including proportion of time of tuberculosis officers and tuberculosis health visitors; and proportionate cost of fuel, light, cleaning, rent, rates, and depreciation), making a total of 4s. 1d. The cost of light treatment should, however, be considered in conjunction with other forms of treatment which

otherwise some of the patients would in all probability have received. Taking the 190 cases which have become quiescent after treatment at the ten light clinics, 48 of the cases would have been recommended for admission to special or general hospitals, 3 to sanatoria, and 62 for out-patient treatment at a special skin hospital.

TABLE INDICATING DURATION OF ACTINOTHERAPY IN TUBERCULOUS CASES.

Form of Tuberculosis or Part of Body Affected.	Number of Cases (Active on Commencing Light Treatment) who became "Quiescent and Apparently Cured."	Average Duration of Light Treatment (Months).	For Comparison: Average Duration of Disease before Commencing Light Treatment (Months).
Skin (lupus and scrofulo-derma)	45	7'77	161'84
Adenitis with abscess formation and skin involvement ...	52	5'62	23'59
Adenitis without softening ...	49	5'33	22'24
Bones, joints, and spine ...	19	8'51	36'15
Abdomen ...	15	5'51	14'13
Other non-pulmonary conditions	5	4'80	8'20
Bronchial glands ...	4	13'00	43'00
Pleura ...	1	4'00	4'50
All types of tuberculosis...	190	6'46	56'40

Knowing the average duration of institutional treatment for such cases and the cost, one can make a comparison between the expense involved in light treatment for these 190 patients and ordinary institutional treatment :

Actual complete cost of 190 patients cured by light treatment at county dispensaries...	£1,150	Estimated cost of residential and out-patient treatment if patients had been sent to hospitals ...	£2,395
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Thus, apart from other considerations, a very considerable financial saving—£1,245—has been effected on the treatment of these 190 patients.

#### The Lancashire Results in Relation to other Schemes and Experiments.

Recently Reports <sup>1,2</sup> have been issued by the Medical Research Council (responsible to the Privy Council) which deal extensively with the value of artificial light for the treatment of a number of complaints—*e.g.*, wasting diseases, the common cold, anæmia, tuberculous ulcers, etc. The Council deprecated the extravagant claims which had been made for artificial light as a cure for all and sundry diseases, and called for further scientific research to prove its uses. Unfortunately these



reports, when summarized in the Press, have given rise to much misconception among the general public, and it was generally understood that the Medical Research Council had condemned the use of ultra-violet irradiation. This, however, is not the case, for, so far as the treatment of tuberculosis was concerned, the report<sup>1</sup> supported the use of artificial light, as the following extract shows: "There is much concordant testimony to the value of regulated skin exposure to artificial light, as being adjuvant in the cure of chronic infections like those especially of tuberculosis."

The chief medical officer (Sir George Newman) of the Ministry of Health makes the position clearer, for he states in his annual report for 1928 that "the best results of artificial light therapy continue to be obtained in the treatment of rickets, lupus vulgaris, and surgical tuberculosis."

The Scottish Board of Health in their 1928 report state that: "It is satisfactory to note that the facilities for artificial light therapy now available at many of the out-patient clinics enable the less severe cases to be treated *without the necessity of residential treatment*.\* Good results are being obtained from light therapy in cases where the disease affects the small bones or joints (of the hand, etc.), in gland cases and cases of lupus."

Treatment of tuberculosis by artificial light has also been provided by other authorities in England and Wales. The methods and results of three very large authorities are given below:

*London County Council*.—Arrangements were made for the dispensary tuberculosis officers to send cases for light treatment at certain hospitals and centres throughout London. Very little use, however, was made of the scheme, an average of six cases being sent from each of the nineteen boroughs in a period of nine months. The reports of the tuberculosis officers "disclosed practically no evidence of benefit having been derived by the patients from this form of treatment." Further, the experience gained in 1928 confirms the view "that the best results are obtained when light treatment is given as an additional method of treatment under suitable conditions in residential institutions in the country, where all methods of treatment are available, in addition to fresh air, good food, and a regular régime."<sup>3</sup>

*Wales* (The King Edward VII. National Memorial Association).—Scheme provides for the treatment of patients at light centres established at several of their tuberculosis hospitals and sanatoria and at one dispensary. "In non-pulmonary tuberculosis ultra-violet rays are of very great value indeed." For example, in lupus artificial sunlight is the only satisfactory method of treatment, and cure can be obtained by this means alone. In tuberculosis of the glands, especially if broken down and discharging, treatment by ultra-violet light is the most useful and beneficial method yet devised. In tuberculous peritonitis the results obtained are equally satisfactory, and compared

\* My italics.

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with other methods show a definite shortening of the time required for treatment.<sup>4</sup>

*Birmingham.*—Artificial light treatment is as a rule given to non-pulmonary patients when in the sanatorium and continued after they have been discharged. The light centre is situated at the City Sanatorium, Yardley Road, Birmingham. "The tendency to regard the application of artificial light to those suffering from tuberculosis as a complete method of treatment in itself should be guarded against. The best results can only be obtained when it is associated with other forms of treatment."<sup>5</sup>

It is remarkable that the cases tried in London have been so few and the results so disappointing. The tuberculosis officers of the Metropolitan boroughs do not, with few exceptions, themselves carry out the treatment as in Lancashire. Unless the incidence of the disease is vastly different from that in Lancashire, I suggest the dual control has caused the unsatisfactory results.

### Summary and Conclusions.

1. Artificial light treatment has continued to give satisfactory results, particularly in regard to patients suffering from tuberculosis of the skin and tuberculous adenitis with abscess formation and skin involvement, which conditions are very slow in yielding to other forms of treatment.

2. Of the total patients attending light clinics 73 per cent. were able to continue their normal occupations during the course of treatment.

3. One-fourth of the patients treated during the year were assisted by the payment of their railway, 'bus, or tram fares to the dispensary light clinics.

4. In regard to the 45 skin cases which became "quiescent and apparently cured," the average duration of the disease before the patients commenced light treatment was 13 years and 6 months, whereas the average duration of light treatment was  $7\frac{3}{4}$  months.

5. For the whole 190 cases which became "quiescent and apparently cured," the average duration of the disease before the patients commenced light treatment was 4 years 8 months, whereas the average duration of light treatment was  $6\frac{1}{2}$  months.

6. Of the 190 cases concluding treatment in 1928 on becoming "quiescent and apparently cured," the consultant tuberculosis officers would normally have recommended 113 for treatment at hospitals. Based on the average duration of treatment of such cases, the cost would have been not less than £2,395, whereas their treatment at the dispensary light clinics actually cost (all inclusive) £1,150—a saving of £1,245.

7. The Lancashire scheme has so far treated 950 patients, and it



CASE I.—J. D., aged 20. (a) Scrofuloderma. Duration of disease before light treatment commenced, 3 years. Previous treatment, nil.



(b) Condition after nine months' treatment at dispensary light centre with general carbon arc baths and Kromayer locally. Gain in weight,  $4\frac{1}{2}$  lbs.; slight pigmentation. Able to remain at work during light treatment. Disease now quiescent.

(Photographs taken at Ashton-under-Lyne Dispensary.)





CASE II.—J. F., aged 17. (a) Tuberculous adenitis with abscess formation and skin involvement. Duration of disease before light treatment commenced, 9½ years. Previous treatment : incision and scraping at general and special hospitals. Condition in April, 1928.



(b) Condition after ten months' treatment at dispensary light centre with general carbon arc baths and Kromayer locally. Gain in weight, 8 lbs. ; pigmentation fair. Able to remain at work during light treatment. Disease quiescent.  
(Photographs taken at Ashton-under-Lyne Dispensary.)



CASE III.—A. S., aged 64. (a) An old standing case of lupus of the neck and cheek. Duration of disease before light treatment commenced, 35 years. Previous treatment: X-rays at a special hospital. Photograph shows condition of patient in March, 1928.



(b) Condition showing improvement after eight months' treatment at dispensary light centre with general carbon arc baths; the white area below and behind the ear is occupied by a supple scar from which active foci of disease have disappeared. Patient still undergoing light treatment.  
(Photographs taken at Chorley Dispensary.)





CASE IV.—C. O., aged 41. (a) Lupus of arm. Duration of disease before light treatment commenced, 12 years. Previous treatment : X-rays, ointment, etc., at a special hospital. Photograph shows condition in April, 1928.



(b) Condition after ten months' treatment at dispensary light centre with general carbon arc baths, and Kromayer locally. Gain in weight, 7 lbs. ; pigmentation slight. Patient able to remain at work during light treatment. Disease quiescent.  
(Photographs taken at Ashton-under-Lyne Dispensary.)



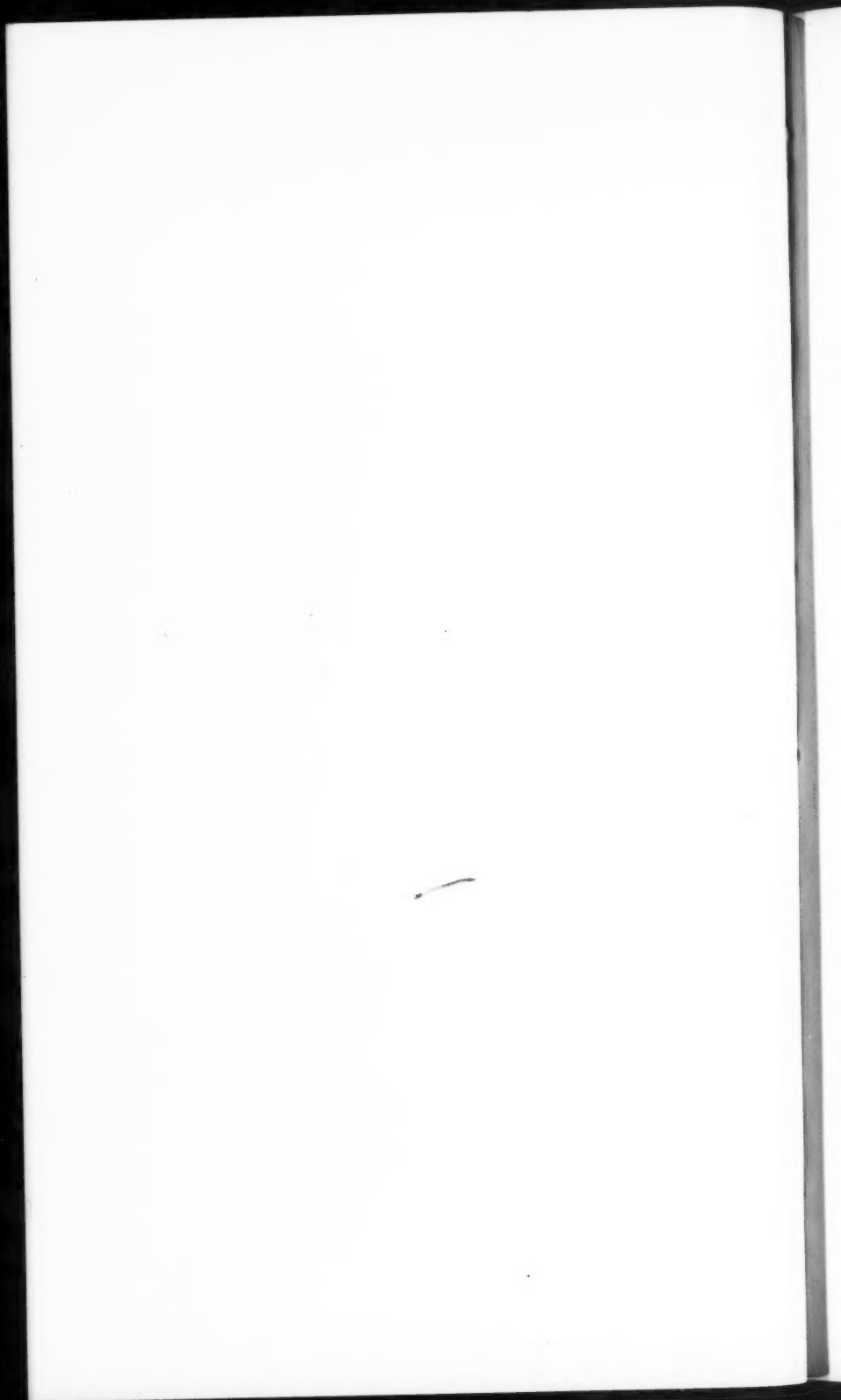
CASE V.—O. M., aged 18. (a) Lupus, large scaly pink patches on left wrist. Duration of disease before light treatment commenced, 12 years. Previous treatment by ointment as an out-patient, and as in-patient at a special hospital, but then occurred a break of three years when no treatment was received owing to refusal of parents until patient accepted artificial light treatment at the dispensary.



(b) Condition after two months' light treatment at dispensary with carbon arc and local treatment (plaster and Kromayer lamp). Still continuing treatment. Weight stationary, pigmentation deep. Able to remain at work during treatment. Progress made in the two months has been remarkable.

(Photographs taken at Eccles Dispensary.)





has undoubtedly been successful: (a) In the results of treatment attained; (b) in convenience to the patients by permitting treatment near their homes and enabling three-fourths of them to continue their normal occupations; and (c) in effecting a substantial saving over other forms of treatment. Its success has been due (1) in particular to the fact that the tuberculosis medical staff have had facilities given them by the County Council to specialize in light therapy, the experimental work lasting for two years before the scheme was applied over the whole administrative area; and (2) in general to the County dispensary scheme, consisting of a graded staff of consultant and assistant tuberculosis officers in charge of large areas, no large sanatoria, but the dispensary staff with their own hospital beds, and finally themselves using modern facilities for diagnosis such as X-rays.

## REFERENCES.

<sup>1</sup> Report of the Medical Research Council for 1927-28.

<sup>2</sup> "Irradiation and Health," Special Report by Dr. Dora Colebrook to the Medical Research Council, No. 131, 1929.

<sup>3</sup> Annual Report, London County Council, 1928, Vol. III., "Public Health."

<sup>4</sup> Welsh National Memorial Association, Seventeenth Annual Report, 1928-29. Report of Principal M.O.

<sup>5</sup> City of Birmingham Report on Tuberculosis for 1928.

## THE AFTER-CARE OF THE CONSUMPTIVE PATIENT.<sup>1</sup>

By E. RIST,

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WHEN we speak of the after-care of the consumptive we do not mean the same thing which we meant, let us say, fifteen years ago. We had then in view the progressive readaptation to normal life and to work of patients whose lung lesions had become quiescent, inactive, and in some instances healed, under the influence of a prolonged air and rest cure. It was a delicate and difficult problem to decide when a formerly consumptive patient sufficiently advanced in this very slow and progressive process of natural and spontaneous healing could be allowed to proceed to a more or less normal activity. When was it safe to let the patient take up work again? How were we to prevent ever-impending recurrence of the disease? We are well aware that, whatever blessings the initiation of methodical air and rest cure and the original founders of the sanatorial institution have brought upon the early diag-

<sup>1</sup> Substance of a paper presented in the Tuberculosis Section of the Zurich Congress of the Royal Institute of Public Health, May 15-20, 1929.

nosed and lightly or moderately diseased consumptive, the permanent healing of serious, excavated forms of lung tuberculosis was after all a rather exceptional achievement. We are also well aware that the diagnostic criteria of lung tuberculosis were still, at the beginning of the present century, of a decidedly loose and misleading character. The remarkable percentage of alleged cures published by various sanatoria before the Great War was no doubt partly due to the fact, already pointed out by Friedrich Müller in 1910, that an important proportion of the inmates of such institutions were not tuberculous at all.

The experiment of the Great War, which obliged every belligerent nation—and many among the neutrals—to reconsider the problem of diagnostic criteria concerning lung tuberculosis, has taught us better. We no more rely exclusively upon transcendental, subtle, and questionable percussion and auscultation signs. We require the demonstration of a definite lung lesion ascertained as well by a competently made and competently interpreted X-ray picture as by unquestionable physical signs. And we furthermore require, at least in the majority of cases and as a routine criterion, that the proof of the tuberculous nature of the lesion and of the activity of the process should be given by the demonstration of the tubercle bacillus in the sputum.

But there is another, and even more important, reason to account for the change which has taken place in our points of view concerning the after-care—namely, the considerable change which has taken place in our methods of healing. Collapse therapy, artificial pneumothorax in the first line, and the other forms of collapse therapy, phrenicotomy and thoracoplasty, have completely modified the outlook and prognosis in cases of pulmonary consumption. To these mechanical procedures we owe to be now able to treat and to cure patients who, in the past, would have had nothing to hope for. We are able to restore these sufferers to health, many of them unconditionally. It is no more a question of preserving an almost always unstable equilibrium between health and lurking disease. The aim and goal to which we are entitled is to achieve a real *restitutio ad integrum*, with all its individual, social, and economic advantages. I dare say we are only at the beginning of this new era. We may confidently assume that collapse therapy in all its forms has not said the last word, that it will be perfected and improved in many ways, and be of greater benefit still to a greater number of patients in the near future. Thoracoscopy and cauterization of adhesions, oleothorax, and last, but not least, bilateral pneumothorax, not to speak of the improved technique of thoracoplasty, have already considerably widened the scope of our therapeutic measures.

I may be pardoned if, in speaking of the after-care of the consumptive patient, I enlarge more especially on the subject of artificial

## AFTER-CARE OF THE CONSUMPTIVE PATIENT 9

pneumothorax. My own field of work is not a sanatorium, but a department of a large Parisian hospital specialized for cases of lung tuberculosis, and intimately connected with a tuberculosis dispensary located in the same building. I am responsible for both hospital department and dispensary. It is at the dispensary that I pick up the patients for the hospital. When the patients are discharged from my hospital wards, they are taken in charge again by the dispensary. There is therefore a continuity of medical control, which can hardly be brought about when patients pass frequently from one institution to another, and therefore from one medical control to another.

The chief problem concerning the after-care of the patient who has been submitted to artificial pneumothorax is to insure the continuation of treatment after his or her discharge from the hospital. It is a problem of organization and of competent personnel. It is also a psychological problem. The consumptive patient who has come to the hospital with an extended and excavated lesion, fever, night sweats, loss of strength and appetite, wasting, frequent cough and abundant sputum; and who after some weeks or a few months has, thanks to the carrying out of a successful artificial pneumothorax, got rid of all troublesome symptoms, coughs no more, expectorates no more, and has no more bacilli in his occasional sputum; whose temperature is permanently normal; who has an appetite, gains weight, and feels strong again—this patient is only too prone to think himself cured for good. Not only is he tempted to make use and abuse of his regained strength, not only is he disinclined to keep at rest and avoid every physical, social, or emotional cause of fatigue, but even his people, on his return to his home, are liable to put too much reliance on the restoration of his health. Sometimes they will pass some open or disguised blaming remarks on his remaining idle when they are all hard at work, and he is under suspicion for malingering if he follows the stringent rules prescribed by the physician.

Of course, the best way to escape these dangers is to send the patient directly from the hospital to a sanatorium. But I must confess that in many instances we are not able to do so, the number of public sanatoria being still too small in my country, and the success of collapse therapy having increased the number of curable consumptives to such a degree, that the number of sanatorium beds could not, up to the present day, keep pace with this increase. Furthermore, even those pneumothorax patients whom we succeed in sending to a sanatorium cannot generally stay there for more than six months, and a time comes when they must return to their home, still needing pneumothorax refills. Our task is therefore to encourage our patients to keep up their treatment regularly during a period of an average of four years. Our practice is to have the refills made at the dispensary, each refill

being preceded and followed by a fluoroscopic examination, and being entirely free from any pecuniary charge. When some complication appears, such as a liquid effusion with fever, or the development of contralateral lesions, or a lung perforation, the patient is immediately admitted to my in-patients' department. It will be easily understood what an amount of medical work this organization implies when I say that the number of refills made yearly at my dispensary is close on 18,000. Two afternoons and one morning a week are entirely reserved for that work, each of my assistants having a special group of patients whom he treats.

But we physicians could not possibly be equal to such a task if we were alone to perform it, and if the purely medical side of the cure was solely considered. Every case must be considered individually, not only from the medical, but also from the social point of view. And here the social assistant or social nurse—or as British readers would call her, the lady almoner—comes in. Our social nurses are specially trained, and perform their duty, not as a charity, but as a profession, a most noble and useful profession indeed. They have to know all about the home conditions of the patient, visit the family, instruct them, take good care that they should co-operate with the patient and the physician, and not unduly and unwisely interfere with his treatment. They put all the state, municipal, or private help they can dispose of at the service of the patient, adjust economic difficulties as well as moral and psychologic ones. These social assistants often meet the most intricate and apparently hopeless situations. But there is almost no hopeless situation which an intelligent, devoted, and steady-purposed social nurse cannot improve in some way.

When artificial pneumothorax has been successfully maintained for some time—say a year and a half or two years on an average—the question arises whether the patient can be allowed to work again. It is a most difficult, important, and urgent question. To solve it, one has to consider it from many different sides. We must not forget that among its many unquestionable advantages collapse therapy has this one, that it gives a consumptive patient all the privileges of restored health long before anatomical healing is obtained and duly consolidated. We are not justified, I think, in depriving him from the logical consequences of these privileges. Nothing is gained—on the contrary, much is lost—by keeping him unduly in idleness after he has reached a stage when he can confidently be allowed to work. If he has been free from symptoms for a year or so, if his sputum does not infect the guinea-pig, if all the criteria of functional health respond positively, he may, we think, resume work and gradually become economically independent again, provided his treatment should be continued and his pneumothorax regularly refilled.

But what kind of work shall we advise the restored consumptive to take up? There has for many years been a kind of universal agreement that work in the open air, in the country, in the woods or fields—rural life, in short—was an ideal sort of life for the cured consumptive. People, I imagine, thought that turning all the more or less restored consumptives into farmers had a kind of idyllic charm and poetic glamour. For my part, I believe that to conceive of such a thing needs a thorough ignorance of both consumption and farming. At least in France, which is still to a great extent an agricultural country, the work of the farmer is the hardest of all, so hard that we are confronted to a degree causing great anxiety with the problem of diminishing labour in the rural districts. That delightful life of the farmer which has inspired so many comfortable poets is, indeed, so hard that a steadily increasing proportion of young men and women, born and brought up on farms, are attracted to the cities, where working hours are shorter, wages are higher, and life is more pleasant according to their desires. And if I am well informed, this process of rural depopulation is going on at the same rate in almost every civilized country.

After the war, we had in France a wave of great enthusiasm for creating so-called re-education schools, where war consumptives would be taught farming, gardening, poultry or rabbit or bee keeping. These schools have all faded away. For my part, I have never met (except, of course, among well-to-do patients who could afford to buy an estate, to live on it, and wave a kindly hand as a matter of encouragement to the hard-working labourers in the field)—I have never met one of these re-educated war consumptives who had been able to make a living by such an agricultural occupation.

Our experience at the Laennec Hospital in Paris is that in the majority of cases the problem may best be solved by helping the patient to go back to the kind of work which he was used to do before he fell ill. Our social nurses make it a point to preserve a contact between the patient and his employers. Often they succeed in persuading the employers to take the patients back when they are again fit to work, to give them light tasks at the beginning, and to take care that they should not be overworked. There are cases, of course, where this cannot be done, and we must then try to find for them some other employment. Except when the former patient is congenitally unwilling to work, we generally succeed in finding normal work for our cured consumptives. It is true that we have hardly any unemployment problem in France. The question is no doubt much more difficult and complicated in England and in other countries.

RECREATION IN THE TUBERCULOSIS  
SANATORIUM.

BY WILLIAM C. HARVEY,

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THE importance of recreation in the régime of a sanatorium where tuberculous patients are being treated is a subject which is deservedly receiving an increasing amount of attention. There can be no doubt whatever that recreation plays an exceedingly important part in the treatment of all tuberculous patients both within and without an institution. This is especially true regarding that type of patient who stands to gain most by sanatorium residence—namely, the case who is up and about all day. Many subjects feel fairly fit after a short stay in an institution. Everyone knows that tuberculous patients, suffering as they do from a chronic ailment which taxes to the utmost all their resources of fortitude and patience, stand a much better chance of recovery if they are kept in a cheerful, contented frame of mind than if they are allowed to become morose, morbid, and introspective. Everything, therefore, which tends to take their minds off their complaint is a definite aid to treatment, and should be utilized to the full. A sanatorium can never be and indeed should never be made like home, but, on the other hand, it should never be allowed to become a place of banishment, to enter whose portals is to forfeit all the rights to rational entertainment and healthy enjoyment. A bad reputation is much more easily acquired by a sanatorium than a good one, and if tuberculous patients get to know that, once in the sanatorium, they are doomed to a dull, uninteresting time, they will not only refuse to enter such a place, but if they go under compulsion they will do so already prejudiced against the institution, and consequently their chances of ultimate recovery will be definitely diminished. Moreover, a sanatorium in which patients are kept cheerful and where they know that everything is being done to make their lives as bright and interesting as possible “runs” smoothly. The little bickerings and frictions which seem to be an unavoidable complement to sanatorium life are reduced to a minimum, and the patients perform their allotted tasks much more cheerfully and willingly.

Graduated labour or exercise in some form or another usually fills up the bulk of the day for patients who are not confined to bed, but even with this there is often an appreciable part of the patients' timetable, usually in the evening, left blank. It is the filling in of this



hiatus which requires careful thought and consideration. The obvious way to tackle the question of recreation would appear to be to regard it from the point of view of indoor and outdoor forms of amusement. Let us consider the latter first.

There are many varieties of outdoor recreation suitable for sanatorium patients, and these should be utilized to the full. Probably the ideal game for the tuberculous patient (especially the male cases) is bowls. This pastime is not too strenuous, can be enjoyed by a fairly large number of patients at one time, and gives the opportunity of arranging matches with neighbouring bowling clubs. This helps to remind the patients that they are not entirely cut off from the outside world. The drawback here is usually the question of expense, as

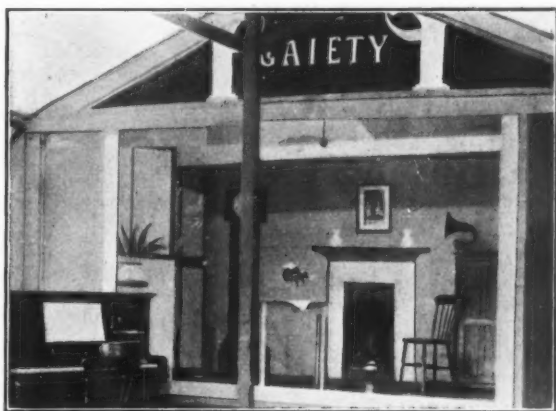


FIG. I.—STAGE OF HOME-MADE THEATRE.

a bowling green cannot be made cheaply. At the Fife and Kinross Sanatorium, Glenlomond, however, an excellent bowling green was constructed and maintained by the patients themselves, and all through the summer there have been matches played with bowling clubs from the surrounding country, these being greatly enjoyed by the patients.

Two other varieties of suitable outdoor recreation are golf putting and croquet, especially the former. Almost every sanatorium has a lawn suitable for conversion into a putting green, which need not be of the standard, say, of a championship golf course. At my own sanatorium quite a good putting green has been made and kept up by the patients, and regular competitions are held and entered into very keenly by the patients and staff. If sufficient room cannot be found for a putting green a small clock golf area can be easily marked out.

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Another quite popular pastime is that provided by a small air rifle range. If it is properly isolated, this is perfectly harmless and can be very cheaply erected.

It is usually possible to arrange a sports day in the sanatorium during the summer. The sports allowed need not be strenuous and should be more of a humorous nature. A very enjoyable afternoon can be spent in this way, and here again the staff can enter into the proceedings and help to entertain the patients.

All outdoor amusements should, if possible, be carried out within sight of the hospital block where the bed patients are situated. It is often remarkable to note how much interest is aroused even in the most apathetic of these patients, through watching their more convalescent



FIG. 2.—TUBERCULOUS PATIENTS "PUTTING."

fellows engage in the various competitions and amusements. Of course, too much noise must always be guarded against very carefully, but this should be quite easily kept under control by careful supervision. Thus, in various ways patients can be encouraged to keep out in the open as much as possible, instead of moping in their wards; while, in addition, their interest is stimulated and their general condition and muscular tone improved.

The question of indoor recreation is one which generally presents considerably more difficulty. A recreation room of some sort or another should be an integral part of every sanatorium, and ought never to be omitted from the plans of a new institution. It should be open each evening for at least an hour and can also be utilized on wet afternoons.

Undoubtedly the most popular form of indoor amusement with male

patients is billiards, and if a billiard table is procurable it should always be obtained. Here again, competitions can be arranged and matches played with outside teams. In addition, carpet bowls and table bowls may often be played in the same room.

Most sanatoria nowadays provide periodical entertainments for their patients, and I have no doubt that these play quite an important part in the patient's fight for recovery. It is usually easy to obtain offers from concert parties, choirs, dramatic societies, etc., where the sanatorium is situated in or near a large town, but sometimes when the sanatorium is placed in an isolated country district this is not so easy. However, even in these cases it is usually possible to arrange several such entertainments during the winter months. The question of



FIG. 3.—PATIENTS PLAYING BILLIARDS IN THE RECREATION ROOM.

accommodation may be a difficult one at times, but if the sanatorium is not the proud possessor of a small theatre or concert hall, it is nearly always possible to utilize the dining-hall or some other large room for the purpose. In my own sanatorium an old and almost derelict building was taken in hand by the patients, a fully equipped stage was built, scenery was painted, and within a reasonable time and at a remarkably low cost a perfect miniature theatre was provided. Any manner of production can now be put on at this little theatre, and apart from this, the work provided the patients (who were all unskilled labourers) with a source of intense and useful interest for a considerable period.

It is also often possible to arrange staff concerts, which, besides providing entertainment for the patients, help to demonstrate to them that the staff are really doing their best to hasten them towards

recovery. Concerts by the patients themselves are usually permissible, but only at infrequent intervals as the excitement generated thereby is often detrimental to their well-being. If such types of entertainment are not possible, however, talks and lectures can be given at intervals. These are often very useful in instructing patients on certain more personal points, and they can be made to combine instruction with amusement. A good example of such a type of entertainment is "question night," when patients hand in certain questions which are answered by the medical superintendent or one of the medical officers of the sanatorium. Bed patients can, of course, be taken to all these entertainments provided there is sufficient space for them.

In these days cinematograph entertainments are becoming a popular form of amusement in sanatoria. Here again, if the sanatorium is situated near a large town, it is often possible to obtain the necessary films free of charge; but even in the country it is quite possible to have frequent cinematograph shows at reasonable cost. The initial cost of the Kodascope projector is not high and the hire of films is also quite reasonable, especially if a few coppers are charged for admission. In addition, the apparatus is quite simple to work and non-inflammable films are now available. Whist drives are also a useful and popular aid to recreation and can be quite easily arranged from time to time.

Another form which recreation may take is by interesting patients in some form of light and remunerative work. Large sanatoria can usually afford to pay an instructor for this kind of occupation-therapy, but even in smaller sanatoria, where this is hardly feasible, much can be done. Several of my patients have, of their own initiative, taken up raffia, basket- and tray-making and leather work, and quite substantial profits have accrued from their labours. Some of the men have even developed skill in knitting! The work serves to give the patients so occupied an added interest in life, and, especially in the case of bed patients, helps to vary the slow course of a long and often monotonous day. Last year at Lochmaben, a bed patient edited and published an excellent magazine which served the dual purpose of entertaining the patients and providing a substantial profit. It should be remembered in this connection that Lochmaben is not a private sanatorium, and most of the contributors to the journal had necessarily to be persons with a very limited education.

Another form of interesting work is also typified at my sanatorium, where, with the help of several members of the staff, the patients run a small kiosk. This is of great service in providing the patients with the means of obtaining little extras without leaving the sanatorium, and, as in the case of the magazine, the profits are considerable and come in very usefully for recreation purposes.

Of late years a wireless installation has proved a tremendous boon

to patients in institutions and not least to sanatorium cases. All sanatoria should have a wireless equipment with, if possible, loud speakers in wards where patients are more or less convalescent, and head-phones in those wards where there are patients who are too ill to be disturbed by broadcasting. Thanks to the generosity of several people interested in the sanatorium, we have such an installation at Lochmaben, and, in addition, our resident engineer fitted up a circuit whereby our sanatorium entertainments can be broadcast throughout the institution.

The arranging of such varied entertainments takes a good deal of time and attention, and so it is usually advisable to have a patients' committee to assist in carrying out the work. Such a committee helps to keep the superintendent in touch with the desires of the patients and takes the greater burden of the work off his shoulders and members of the staff.

These provisions for reasonable recreation, together with a few others, such as a patients' library and the provision of games and gramophones for individual use in the wards, seem to constitute the principal methods by which patients may be entertained during their stay in a sanatorium.

As I have already stated, sanatorium life can never be like home life, but, even consistent with the strictest discipline, a certain amount of innocent amusement should always be provided not only in public institutions but also in private sanatoria. Indeed, it is often possible to provide a sanatorium patient with forms of recreation and amusement which he or she could never have obtained at home. For the provision of all these forms of amusement, however, financial support is required, and it is very often the acquiring of money which acts as the stumbling block in setting schemes on foot. I am firmly convinced that it is almost as necessary to provide the requisite funds for the purpose of recreation as it is to supply means wherewith to buy drugs and secure medical equipment. For this purpose a recreation fund is invaluable and can usually be obtained, if by no other means, through the generosity of those interested in the welfare of the sanatorium. We are fortunate at Lochmaben as our Chairman, Sir William Younger, of Auchen Castle, has established a recreation fund which admirably fulfils our needs. Sanatoria, however, should not be dependent upon promiscuous charity to enable necessary entertainment and recreation to be provided for their patients, and every authority should have a scheme whereby a sufficiency of funds is available at all times for such purposes as I have endeavoured to indicate.

## CRITICAL SURVEY

## RADIATION THERAPY IN TUBERCULOUS DISEASE.

By ALBERT EIDINOW,  
M.B., B.S. (LOND.), M.R.C.S. (ENG.).

EXPERIMENTS have shown that tubercle bacilli suspended in saline can be destroyed by ultra-violet rays of wavelength shorter than 3,300 A.U. In the presence of defibrinated blood or serum no bactericidal action can be demonstrated even after intensive irradiation of a very thin film of suspension. Similar experiments carried out with mixtures of defibrinated blood and staphylococci have shown that bactericidal action is noticeable after half an hour's irradiation of the thin blood film, and complete destruction of the cocci after one hour's exposure.

Concentrated solutions of tuberculin are resistant to light; solutions of 1 in 1,000 concentration can be weakened by exposure to rays shorter than 3,250 A.U. Recently W. Hausmann, W. Neumann, and K. Schuberth have shown that inoculation of irradiated tuberculin does not give rise to any local reaction, but the usual general reactions are obtained.

These experiments afford evidence that rays shorter than 3,300 A.U. are the most bactericidal on the tubercle bacillus. The long ultra-violet rays from 4,000 to 3,300 A.U. are without effect. Since the penetration of shorter rays is small, it is doubtful whether local bactericidal action occurs *in vivo* with either the local Finsen lamp or the Kromayer types of local treatment lamps. The fact that the whole range of rays from infra-red to 2,300 A.U. emitted from the mercury vapour lamp cannot destroy tubercle bacilli in a thin blood film, even after an hour's exposure, strongly supports this view.

Many theories have been advanced to explain the successful results which have been obtained, but no definite experimental proof has been yet described which can explain the reaction of the tissues following the general irradiation of the skin of the body, or the local application of the rays to the site of the tuberculous lesion. While the chronic tuberculous diseases of the skin and mucous surfaces respond admirably to ultra-violet radiation, the tubercle bacillus is an organism which is more resistant to light than pyogenic cocci.

The modern conception of the treatment of tuberculous disease by

light can be described as the effects following the exposure of a surface layer of cells to natural or artificial sources of light. The photo-biochemical reactions following the absorption of irradiated tissue cells increase the non-specific immunity of the whole organism. In the past many methods for the treatment of tuberculous disease have been advanced which have claimed to possess the power of production of specific immunity: antigens, immune sera, and chemotherapeutic compounds have each in turn been tried, and have proved indefinite and variable in their final success. The sanatoria principles of rest, diet, aerotherapy, and heliotherapy are still the most stable methods which up to the present day have given the largest percentage of clinical cures. Although the question of radiation therapy has aroused much controversy, there can be no doubt whatsoever that the clinical evidence at our disposal has proved that patients suffering from tuberculous disease respond favourably to ultra-violet radiation. The exposure of the skin of tuberculous patients to radiation improves the general health and increases their power of resistance to infection.

The results of my experimental research have led me to advance the theory that, following the absorption of ultra-violet rays of wavelength shorter than 3,300 A.U. by the tissue cells, a photo-biochemical product is produced which is absorbed and causes increased bactericidal power of the blood, primarily at the site of irradiation, and then later in the general circulation.

#### **The Rôle of Heliotherapy.**

The use of sunlight and open air in the treatment of disease was primarily utilized as a local measure for the treatment of ulcers and wounds. The first hospital for the complete open-air treatment of surgical tuberculosis was founded in England in 1902 at Baschurch. The work of O. Bernhard and A. Rollier in Switzerland has led to the practical application of heliotherapy, aerotherapy, and modern methods of electro-magnetic ray therapy in all parts of the world.

O. Bernhard of St. Moritz states that: "The sun is the best and most natural agent for promoting the activity of the damaged cells and promoting healing, and for keeping exuberant granulations in check. Limbs most seriously contused and lacerated respond very well and are saved from amputation." He shades the head and protects the eyes with spectacles, and exposes the wounds on a verandah or through a window to sun and open air, and on cloudy days to diffuse daylight. The wounds may be protected from dust by thin gauze if necessary, but no other screens are used. Fifteen to twenty minutes is the duration of the first exposure, and this is increased each day by ten to twenty minutes up to three to six hours. After sunning, the wounds may still remain exposed to the air. The wounds soon become clean



and the discharge dries; the granulations become small and healthy-looking. Even strongly discharging ulcers and cavities dry up in a short time and become free from smell. The wounds exude a clear serum which washes them and dries to a fine parchment-like film. Drainage is usually superfluous. Pain is prevented. The parchment-like film may be thick enough to protect the patient from rubbing clothes, but has to be removed in places to allow the treatment to continue—the only discomfort of the process. During the night, or at other times when not exposed, he covers the wound with a dry dressing sufficient to protect it from rubbing. Very little contraction of scar results; the epithelium grows quickly over wounds or ulcers. Bernhard attributes the good effects to a direct antibactericidal effect by the actinic rays and destruction of their toxins, while the growth of epithelium is promoted, together with the hyperæmia and better nourishment of the tissues and a greater overflow of immunizing serum. The warmth of the sun aids in the healing. In cases of carcinoma of skin or mamma after operation, the sunning, Bernhard thinks, may help to protect from recurrence. He mentions three cases of skin carcinoma claimed to be cured by sun treatment alone. In one of these the diagnosis was confirmed by the pathologist.

The greatest triumphs are obtained with surgical tuberculosis. After some months children who were mere skeletons, with old suffering looks, with withered hanging skin, atony of bowels, and protuberant abdomen, are scarcely to be recognized. They exhibit a beautiful, firm, brown skin, properly lined with fat, strong muscles, an astonishing increase of weight, a fresh, happy, and healthy appearance. Also in the adult, and even in old people, one sees a surprising change in a relatively short time. Hand in hand with the better condition goes the healing.

Of his first 1,000 cases of surgical tuberculosis Bernhard healed 858, improved 120, while 14 remained no better and 8 died. Of the 14 which did not improve, 6 subsequently died of their tuberculosis, giving a total death rate of 1.5 per cent. With lupus he obtained excellent results. Cases of extensive ulcerated scrofuloderma and erythema nodosum of tuberculous origin have done well. Also cases of eczema, psoriasis, acne, and baldness have given favourable results.

Tuberculosis of lymph glands in all stages are favourably influenced. Tuberculosis of hilus glands, often the beginning of pulmonary tuberculosis, do especially well. In bone tuberculosis there results complete restitution and regeneration. Joints which appear almost destroyed recover, together with normal function. Bernhard is convinced that, given time and patience, all cases of bone tuberculosis recover through heliotherapy. The milder cases of tuberculosis of

testicles are sunned, severe cases amputated and then sunned. No functional harm is done to the testis by sunning. Tuberculosis of female generative organs heals very well, and in cases of kidney tuberculosis astonishing and complete recoveries are brought about. If he is sure that there is tuberculous infection of one kidney only, he removes this and then gives prolonged sun treatment as a prophylaxis. Heliotherapy is excellent for tuberculous fistulae following operation on the kidney. Out of fifty cases of tuberculous peritonitis, forty-nine were completely healed. The only failure was complicated by pulmonary tuberculosis. Several of these cases became mothers of healthy children. Cases of rectal fistula and tuberculosis of the bowel do well, likewise cases of tuberculosis of the eye and ear.

Hervi at the sanatorium of La Motte Beuveron has treated tuberculous patients by Rollier's technique, and concludes by stating: "Heliotherapy only disappoints those who do not give enough attention to it." Rollier states that the local action of the sun's rays exercises an action that is wonderfully soothing, tissue producing, and resolvent upon the various localities of surgical tuberculosis, but general application constitutes the powerful stimulant of tissue exchanges and the vitality of the organism. The technique of his treatment can be obtained by reference to his writings; he regards the skin as an organ capable of producing immunity.

#### **Artificial Light Treatment.**

At the Finsen Light Institute A. Reyn and N. P. Ernst have employed carbon arc lamps and mercury quartz vapour lamps. At first (1913) they employed Rollier's technique, using gradual exposure, avoiding erythema, and encouraging pigmentation. Afterwards they altered their technique, since pigment appeared to be a hindrance to the effect of the light on the organism. They noted more improvement of those patients who had received strong erythema dosage with desquamation, but showed little pigmentation. The whole skin of the body was exposed to arc lamps, at first for a quarter to half an hour, gradually increased in the course of eight to fourteen days to two and a half hours. Greater caution of dosage was observed with the quartz mercury vapour lamp. The results of their treatment were very satisfactory in tuberculous disease of the skin and glands; they state that patients feel well, generally gain in weight, and develop greater energy. After one or several months of treatment patients show a complete transformation and their general condition is improved. In the treatment of lupus by the universal light baths the ulcerations heal, the infiltration decreases, but complete disappearance of the nodules only occurs on application of local treatment. N. P. Ernst has described good results by the Finsen technique in many cases of surgical tuber-

culosis. O. Strandberg has reported successful cures of types of tuberculous disease of the larynx and upper respiratory tract by the use of general arc-light baths. He states that patients often lose weight at the commencement of treatment, but after two to three weeks the weight steadily increases and the sedimentation test of the blood gradually improves. He has no hesitation in giving light treatment to patients with temperatures or in pulmonary tuberculosis. Dr. Gravesen states that it has not been found necessary to break off light treatment in a single case on account of the condition of the lungs. These excellent clinical results are also recorded in this country by Lissant Cox, Stanley Banks, M. Weinbren, and Murray Levick. I have found that tuberculous disease of the mucous membrane, such as the eye, nose, larynx, and upper respiratory tract, heals with greater rapidity than tubercular disease of the skin and glands. After preliminary general radiation therapy, local treatment greatly hastens the healing process.

E. Mayer reports excellent clinical results with ray therapy. His conclusions can be summarized as follows:

1. *Sunlight*.—The most favourable response to solar exposures have been shown by the so-called pretuberculosis of children, and by tuberculosis of the lymph-nodes (including hilum), the pleuræ, bones and joints, peritoneum and intestines. Less favourable results are usually obtained in pulmonary, genito-urinary, laryngeal, ocular, aural, and cutaneous tuberculosis. With joint tuberculosis the fibrous form of ankylosis has been overcome, and joint function has been often restored. With lymph-node disease massive tuberculous glands have been extruded from their capsules during healing by light. Fistulæ are more resistant to treatment.

2. *Carbon Arcs*.—With plain or cored carbon arcs of high amperage (from 55 to 75 amperes) or with arcs of lower amperage (from 20 to 29 amperes) the best results have been reported with cutaneous, bone and joint, lymph node, laryngeal, peritoneal, and ocular (corneal and phlyctenular) tuberculosis; less favourable have been the reports on progressive pulmony, genito-urinary, and intestinal tuberculosis.

3. *Quartz Mercury Vapour Light*.—Ten years' experience with the use of the quartz mercury vapour light as an adjuvant, the most favourable response has been encountered in intestinal tuberculosis. The diagnosis was established by a history of all varied digestive complaints, such as alternating constipation and diarrhœa, nausea, vomiting, abdominal pain, soft or watery stools, or merely by persistent loss of weight or slight elevation of temperature otherwise unexplained; by any or all of these symptoms combined with Roentgen-ray demonstration of spasm or filling defect in the cæcum or ascending colon in a patient known to have pulmonary tuberculosis.

Other forms of tuberculosis which in his experience are frequently

responsive to mercury arc-light exposures are the "hilum glandular" or so-called hidden tuberculosis of children and adults; the superficial forms of tuberculosis, such as the cutaneous, oral or pharyngeal, laryngeal (except the acute and oedematous forms), corneal and phlyctenular ocular tuberculosis, and the lymph-node and peritoneal tuberculosis. Less favourable in their response, but occasionally improved, are genito-urinary and bone and joint tuberculosis. Post-operative sinuses after nephrectomy were especially responsive.

Reliance on artificial sources of light as an important aid in pulmonary tuberculosis is not to be encouraged. He states that light of any form by itself is not curative, but comprises only one of the important adjuvants in the treatment of tuberculosis. To believe that sunlight or artificial sources of light will cure all forms of "surgical" tuberculosis is unduly optimistic. To use it without sound medical guidance and adequate equipment, and, finally, to employ it to the exclusion of rest and the hygienic-dietetic regimen, eliminating orthopaedic measures or the occasional necessary surgical intervention in bone and joint tuberculosis, is bound eventually to dishearten many sufferers and to bring discredit on an otherwise eminently desirable method of treatment.

#### **Contra-Indications to Solarization.**

The following are contra-indications which must be remembered by those treating tuberculous cases by heliotherapeutic measures and actinotherapy: Advanced heart disease, severe arterio-sclerosis, high fever with intoxication, extreme nervous irritability, are the most important contra-indications to light therapy. There is no real danger of hæmoptysis in pulmonary tuberculosis when dosage and technique are carefully regulated. All types of inflammatory microbic disease can be aggravated by incautious over-exposure to the sun or arc lamps. Rollier states that patients with renal insufficiency do not benefit from solarization. Ansted, however, suggests that hyperæmia of the skin exerts a favourable influence on the degenerative process of the kidney, with diminution of albumen and improved renal function due to increased excretion of the skin.

The contra-indications to ray therapy must not be confounded with errors in technique, and overheating of the body, either by infra-red rays or by the deeper penetrating luminous rays, must in all cases be carefully avoided. There is no doubt that many failures in tubercular disease have been due to excessive exposure, which may cause severe general reactions, excessive pyrexia, exhaustion and general fatigue, and a general upheaval of the mechanism of immunity, which can be demonstrated by bactericidal properties of the blood, phagocytic index, sedimentation and coagulation tests, etc.

### **Types of Diseases Suitable for Ray Therapy.**

The cure of tuberculous disease by means of radiation therapy may be regarded as due to: (1) The absorption of products of photo-biochemical reactions. (2) The results of counter-irritation, hyperæmia, and tissue-cell destruction. (3) Changes in the endocrine or vitamin metabolism in the organism. With cautious technique and careful individual control of each patient, all types of tubercular disease may be benefited by radiation therapy, provided that careful clinical observation and, wherever possible, laboratory methods of investigation are made to control reactions and to assess the effects of each dose of light.

Uncontrolled dosage, unskilled technique, and lack of knowledge have already done much damage in this country to a valuable and scientific remedy, which has had years of clinical trial abroad, and which has been accurately proved to have great powers of increasing and accelerating the immunity of the body, even to a greater degree than many other antigenic or chemotherapeutic substances. Many of the failures are due to errors in technique.

In those chronic cases where there is excessive fibrosis and hard-scarred tissue, in which both blood and lymphatic supply are grossly diminished, light therapy alone cannot heal, and other measures must be applied to promote a good circulation and fresh granulation tissue. In the acute febrile stage, cautious dosage and careful control of temperature are vitally important. In deciding the method of treatment, it must be first decided if the radiations employed have as their object the production of a local inflammatory reaction, or if they are to be employed as a measure for production of antibactericidal substances in the body, or, finally, if they are to be used only for stimulating the blood-forming organs and improving the general health of the patient.

### **Local Treatment.**

The local application of light to ulcers and granulation tissue accelerates healing and repair. This is mainly due to the erythema reaction which ensues, and increases the blood supply locally at the site of a lesion. The general condition of the patient should be good before local treatment is employed, so as to prevent severe reactions. The water-cooled arc or mercury vapour lamp should be employed, and full erythema dosage should be applied.

### **Lamps employed in Arc-Ray Therapy.**

Although there are a multitude of lamps available for ray therapy, as a broad general classification two types of lamps are employed: (1) Those which emit short ultra-violet rays and rapidly produce erythema of the white skin. (2) Those which emit long ultra-violet

rays and slowly produce erythema. These lamps are more closely allied to solar therapy, and, in addition, heat the body by infra-red and luminous radiation.

As regards technique, various methods have been employed by different clinicians. These may be classified as follows: (1) *Surface Area of Skin*: (a) Exposure of the whole body; (b) exposure of small areas of the body. (2) *Skin Reactions*: (a) Suberythema doses; (b) erythema doses; (c) pigmentation dosage.

It is first to be remembered that each of these methods has given successful clinical results. It can be definitely said that prolonged exposure with excessive heating of the body is harmful in cases of acute, subacute, and febrile conditions. These types of cases respond best to short-ray therapy applied to an area of the body corresponding to roughly one-sixth of the surface area of the body. Rollier's technique, starting with gradual exposure and increasing both surface area, time and intensity of dosage, appears to be the best means for the production of pigmentation. There is no definite evidence which proves that pigmentation is associated with healing. Rollier in the past has assumed that the pigment, melanin, is a transformer of light energy; he supports Christen's view that this pigment produces secondary rays on exposure to sunlight. It is to be remembered that this pigment is a non-fluorescent substance, which from its physical properties strongly absorbs rays of light, and acts as a protective screen to luminous and ultra-violet rays. The pigmented patient can withstand heat and prolonged exposure to heat and luminous rays. It can therefore be conceived that this is a mechanism of defence against excessive exposure to radiation, and has no relation to healing and response to an infective process. In the study of the erythema reactions following exposure to ultra-violet rays, the hyperæmia, lymph exudation, and the leucocytic infiltration play a predominant part, and may be an important factor in the healing process. The problem of the production of minimal or maximal reactions is only a question of degree. I have shown by observation on the response of the bactericidal power of the blood following irradiation of the skin that the surface area of the skin exposed is of greater importance than the time of exposure or the intensity of rays giving the final degree of erythema. Further than this, it has been shown that the skin is immune to reaction after the erythema dose of ultra-violet rays has been applied to any given area. On these observations I have devised the technique of short-ray therapy which has already been fully described. This technique is applicable to any type of lamp which emits short ultra-violet rays and produces erythema quickly. Pigmentation is carefully avoided, since this would impede this erythema production, and dosage would have to be prolonged. This technique may be summarized as follows:



1. The suberythema dose of light is applied to a surface area of skin corresponding to roughly one-sixth of the surface area of the body three times a week.

2. The area of skin exposed is shielded from light for a period of ten to twelve days, so that the skin can be maintained in a light sensitive state and readily respond to subsequent radiation.

From a theoretical hypothesis the principle of short-ray therapy is regarded as a photo-biochemical reaction, in which the rays of light which are absorbed by the skin cells cause chemical reaction within the living cells. The products so formed stimulate an erythema reaction and an intracellular leucocytosis. Bactericidal substances and vitamin products are also found, which are absorbed by the blood stream. In this latter respect radiation therapy may be regarded as chemotherapeutic action. As a result of this exposure to light it has been possible to demonstrate that the bactericidal power of the blood is increased. This is of some important significance in tubercular disease, as in many cases of chronic disease of the lung it has been shown that the bactericidal power of the blood is impaired and low. Successive minimal erythema doses of ultra-violet rays gradually increase this hæmobactericidal power until a high level is maintained. Up to the present it has not been possible to correlate the hæmobactericidal power with the resistance of the organism to infection. There is definite evidence available that prolonged exposure of the body to weak sources of ultra-violet rays and to luminous and heat rays, avoiding the production of erythema, has the power to increase the resistance to infection. In this respect there is a difference between the action of rapid short-ray therapy and the prolonged exposure to light for twenty-four to forty-eight hours. By the use of mercury vapour lamps with selective screens, or by the use of vitreosil in place of quartz, the short rays may be filtered; tungsten filament lamps afford an excellent source of luminous and infra-red rays, and by the combination of these types of lamps a source of light can be produced which is analogous to solar radiation. In the future I hope to see these lamps used in sanatoria combined with aerotherapy, and I hope that beneficial results will be recorded. For this method of treatment should be the best means to obtain a combination of light and air which can be applied for long periods without the production of severe skin reactions, which invariably mean that treatment must stop until the reaction of the skin has subsided.

It is impossible to dogmatize as to the best method or source of light which should be employed for the treatment of tubercular disease. There are no specific laboratory methods to determine the index of reaction of the body to radiation. The methods available, such as the bactericidal power of the blood, the sedimentation test, and complement



fixation tests, are only methods which can guide us as to the progress when associated with the clinical evidence at our disposal. But the short-ray therapy technique should only be applied when using sources of light which emit rays shorter than 2,970 A.U., and long-ray therapy should be adopted with lamps which only emit weak intensity of short rays and high intensity of long ultra-violet, luminous, and infra-red rays.

## ASSOCIATIONS AND INSTITUTIONS.

STANNINGTON SANATORIUM,  
NORTHUMBERLAND.<sup>1</sup>

THE first stone of the first British sanatorium for consumptive children was laid on September 16, 1905, by the late Mr. Roland Philipson, and the sanatorium opened on October 5, 1907, by the late Duke of Northumberland. It may be as well to look back for a moment to the events which led up to this great step in the public interest in regard to the cure and prevention of tuberculosis. In those early days of the tuberculosis campaign the State took no direct interest in the consumptive, who was left entirely to the mercy of private charity. The Society



THE STANNINGTON SANATORIUM : GENERAL VIEW.

for the Prevention of Consumption had been doing good pioneer work throughout the country in instituting local branches, and the first fruits of their work in Northumberland was the building of Barrasford Sanatorium for the treatment of adults, now taken over by the Newcastle Corporation. It was left to the Newcastle Poor Children's Holiday Association to cater for the consumptive children. It is difficult today to picture the sad plight of anyone afflicted by tuberculosis in those early days of the present century. To label a patient as a consumptive was as good as issuing a death sentence, and it was long ere this idea lost its hold on the lay mind, and it is not too much to say that there remain traces of it today among various sections of the community. The Newcastle Poor Children's Holiday Association, the work of which is now so well known, working amongst the poorest of the poor, was naturally brought face to face with large numbers of sufferers from tuberculous disease, and it occurred to the late Dr. Allison, then its honorary medical officer, to suggest in 1903 to his committee the building of a sanatorium exclusively for consumptive children. The committee, with its honorary general secretary, Mr. John H. Watson, whose noble and disinterested work needs no comment, took up the idea, and soon funds were forthcoming; the magnificent gift of £5,000 by the late Mr. Roland Philipson made it possible to proceed with the scheme. A site was chosen on a farm between

<sup>1</sup> We are indebted to Dr. T. C. Hunter, M.D., Medical Superintendent of the Stannington Sanatorium, Clifton, Morpeth, Northumberland, for the accompanying account, and also for the loan of blocks from which the illustrations have been prepared.—EDITOR *B.J.T.*

Stannington and Morpeth, and was bought by the Association for the purpose of founding the sanatorium. £1,000 from the Scott Trust Fund was handed over at the opening by Mr. A. E. Ward. It was at this time that I joined Dr. Allison as his assistant, both of us acting in an honorary capacity. In those early days funds for maintenance were hard to find. Mr. Watson, with his genius for stirring the hearts of generous people, never failed the institution in those difficult years. Friends came forward; some paid weekly maintenance fees of varying rates, others contributed a lump sum, and in some cases the guardians came forward with contributions. Thus we struggled along until another generous donor, Sir William Stephenson, then Lord Mayor of



THE STANNINGTON SANATORIUM : THE NEW SUN PAVILION.

Newcastle, provided £4,000 to build the Lady Stephenson wing for fifty additional patients, thus doubling the number of patients that could be treated. Matters now developed rapidly, and with the advent of the national tuberculosis scheme our horizon widened, and cases began to come from all parts of the northern counties. The foundation of the up-to-date system of education whereby the individual needs of each child are carefully catered for were laid in these early days, when through the enterprise of one of our staff classes were started giving the patients something to interest them and to occupy their minds. This led to the establishment of a school, which was soon recognized by the Board of Education, and which has grown and developed with the sanatorium until now there are eleven teachers on the staff, and the work done by our patients is a perpetual source of wonder and admiration to all our visitors. The Lady Stephenson wing was opened on October 28, 1911, by Earl Grey, and from that time facilities for the treatment of cases of surgical tuberculosis were available, and all types of the disease were dealt with. A small bacteriological laboratory and a

theatre were included in the new wing, and the institution became to all intents self-contained, and much useful work was carried on. Our next notable addition to the equipment of the sanatorium was the provision of an X-ray plant, gifted by Miss Kate Stephenson, the daughter of the late Sir William Stephenson. An engine to supply the necessary power for this was given by Sir George B. Hunter. This year of 1920 also saw the installation of arc lamps for the treatment of tuberculous ulcers. It is of interest to note that results have been so satisfactory that these same lamps are still in daily use, although four years ago a large light department fully equipped with all modern types of ultra-



THE STANNINGTON SANATORIUM: CHILDREN UNDERGOING TREATMENT IN THE NEW VITA GLASS PAVILION.

violet apparatus was opened. As time went on, the need for further extensions became pressing. Applications for treatment were being received in great number, and the Association prepared a great scheme for providing the additional accommodation so urgently needed. As a result of much generous support, three large wards—the Charlotte Stephenson Ward (given by Miss Kate Stephenson in memory of her sister), the Ochiltree Ward (given by the late Mrs. Ochiltree), and the United Services Ward, accommodating an additional 120 children—were opened on October 30, 1920, by the Duke of Northumberland. By 1922 the sanatorium was recognized as the most up to date in the North of England. It was fully equipped for the treatment of tuberculosis in all its forms, every type receiving appropriate treatment, while the induction of artificial pneumothorax was undertaken in suitable cases. Applications for the admission of patients continued to pour in, and it was decided that a further wing be added. The cost of this was

borne by Mr. Joseph Brough, and in May, 1926, His Royal Highness the Duke of York opened the Brough Wing for seventy children and a Nurses' Home, rendered necessary by the rapid growth of the institution. This last addition has brought the number of patients up to 310, and for many years there has not been an empty bed in the sanatorium. As I have previously pointed out, owing to the repeated failure of so-called cures for tuberculosis, we are still to a great extent dependent on hygienic measures in the treatment of this disease. It is acknowledged by all thinking phthisiologists that every detail in the life of a consumptive should be planned as carefully as a surgical operation. Thus we require suitable buildings, adequate shelters, good cooks, impeccable food, a highly trained nursing staff, a specially trained medical staff, and every possible means of improving the conditions under which patients live. Knowing the value of natural sunlight to our patients, we immediately seized on the advantages afforded by vita glass to obtain the maximum amount of sunshine possible in this country. In 1927 the idea of building a large room of vita glass wherein our patients suffering from pulmonary tuberculosis could receive uninterrupted treatment was happily realized by the generosity of an anonymous donor, when the Stanington Vita Glass Pavilion, the first of its kind, was opened by the Duchess of Northumberland. This pavilion has accommodation for fifty patients. It can be freely opened on north and south, and a maximum of fresh air can be obtained. When shelter is desirable, sliding windows are closed in the appropriate position, and the patients still get the benefit of skysshine while sheltered from harmful winds. Here patients spend their days in reclining chairs, basking in sunshine, and receiving educational instruction specially suited to their physical condition. The accompanying photograph was taken on an afternoon early in March of 1929. The pavilion has been a wonderful adjunct to treatment, and we would not now be without it. Cases treated in the pavilion during the past year have made excellent progress towards quiescence, as the following table, published in the *British Journal of Actinotherapy* in October, 1929, shows:

SUMMARY OF THIRTY-THREE POSITIVE CASES TREATED IN THE VITA GLASS PAVILION AT STANNINGTON.

Lost T.B.	Lost Sputum.	Lost Elastic Fibres and Physical Signs.	Percentage of Cases Still Active.
16	2	4	11 { 7 prognosis bad. 4     ,,     doubtful.

At present we are awaiting the completion of a fine X-ray block, which is to be fitted with a powerful modern apparatus, such as is required for chest work, and a theatre which is expected to be one of the most up to date in the country. Thus all through its history the Stanington Sanatorium has kept in the forefront as regards equipment and treatment, and one feels that all these generous donors have not in any sense wasted their money in handing it to an Association that seems to know how to make the best use of all the money it has been so successful in attracting. On looking back over this paper, two things impress me. Our small beginning, groping in the dark, not knowing from

where our funds would come, or the huge dimension we should ultimately attain, the great boon the sanatorium would prove to the North Country, nor the beneficial results that would be obtained in a climate none too favourable. The second point which will doubtless strike readers of these notes is that we have been writing all the time about buildings, when one knows that it is not so much the buildings which count, but the effectiveness of administrative detail, the training and tradition of the nursing staff, the quality of the food, and the discipline founded on a right conception of the disease and how it is to be combated. In this necessarily limited account of an extensive work one has made reference to two names appearing on the list of the representative committee. Countless workers have, however, contributed their quota to any success which all now enjoy.

#### THE TUBERCULOSIS GROUP OF THE SOCIETY OF MEDICAL OFFICERS OF HEALTH.

DR. E. WARD has favoured us with the following short account of the history and work of the tuberculosis group of the Society of Medical Officers of Health. It was Professor H. R. Kenwood who first suggested the formation of groups within the Society, and prepared a practical scheme for necessary organization. The establishment of the tuberculosis group took place at a meeting called by Dr. Menzies, and held on May 31, 1920, when twenty tuberculosis workers and Mr. Guy Elliston were present. Professor Benjamin Moore served as the first president. The writer first attended a meeting in December, 1920, was elected to the committee in 1921, and as secretary and council representative in 1923. At first the organization was designated a council, but became a committee about the middle of 1921. The first year there were nine meetings, some sparsely attended. Professor Leonard Hill read a paper to the Group at the Mount Vernon Medical Research Centre, Hampstead, on October 23, 1920; Dr. Vere Pearson provided a contribution in December, 1920, at the house of the Society, and Professor Collis opened a discussion in January, 1921. Dr. Hyslop Thompson addressed the Group in April, 1921, and Professor Moore read his Presidential Address to the whole Society in May, 1921. Most of the early meetings were devoted to discussing the rules and constitution of the Group and the scale of salaries. A librarian was appointed in July, 1922, but has never functioned, and I am uncertain if he was informed of his election. The committee was in low water in 1922-1923, and for practically a whole year no quorum was obtained. Since then our meetings have gradually become better and better attended, and we are now a genuinely representative body. There are at present 180 members of the Group. The majority of the committee members are elected by local tuberculosis organizations, some by the branches concerned, and one or two are co-opted. Minutes have always been published in *Public Health and Tubercle*, and sometimes in other journals. Many minor medico-political or ethical difficulties have been overcome. In 1924 the foundations of the Joint Tuberculosis Council were laid, and, later, the question of disinfection and memoranda on Notification and the Improvement of the Tuberculosis Service have been referred to it. A memorandum on the Factory Acts was pre-

pared by Dr. Vallow, who also took part in a deputation to the Ministry of Health. With the able assistance of our local secretaries, an exhaustive enquiry into the working of after-care committees was completed in 1926. A memorandum on the Prevention of Tuberculosis in Children was also prepared in the same year, and received considerable publicity. The salaries scale and salaries generally have been a constant preoccupation, and will continue to be so in the future.

### THE JOINT TUBERCULOSIS COUNCIL.

Dr. E. Ward has also sent us the following memorandum on the improvement of the tuberculosis service recently adopted by the Council. The efficiency of the tuberculosis service varies widely in different districts, but backward areas are being improved by wise stimulation from headquarters. Supervision should not be used so as to hamper individual initiative or impede experimental methods. The chief factor in success is the personality and ability of tuberculosis officers and superintendents of sanatoria, and, to secure this, remuneration sufficient to attract good officers is all-important. An indifferent officer fails to obtain the confidence and esteem of the general practitioners on whom so much depends. It is better to have fewer and better-paid officers with larger areas than a large number of poorly-paid men and women of mediocre capacity. Rural areas of 250,000 population, and urban areas of 350,000, can be managed by one whole-time officer with adequate medical and clerical assistance, and would provide sufficient remuneration. The service should be graded so that those who have acted as assistants may become higher-salaried, whole-time consultant tuberculosis officers or senior sanatorium superintendents. Superannuation schemes should be generally adopted, or so arranged that an officer does not lose by transference to another district. The tuberculosis officer and sanatorium superintendent should have at their disposal facilities for diagnosis, such as an X-ray outfit, and for special forms of treatment, such as light and artificial pneumothorax. Each tuberculosis officer should have hospital beds available for cases in which he is specially interested. Dispensary and sanatorium officers should be first and foremost clinicians, but should have a public health outlook. Facilities to attend post-graduate courses are of the highest importance. In certain circumstances, where the sanatorium belongs to the authority responsible for the district in which it is situated, it may be advantageous for the medical superintendent to be responsible for the tuberculosis work in the vicinity of the institution as part of his whole-time duties. It is not intended that this should apply to sanatoria other than those under direct control of local authorities. The practitioners' sense of responsibility in the diagnosis, prevention, and treatment of tuberculosis must in no way be impaired: it is the first duty of dispensary and sanatorium officers to ensure this. One of the most helpful qualifications for these officers is to have been themselves engaged in private practice. Any improvement in the tuberculosis service is closely bound up with the preliminary training of men entering this service, and with the education of medical students and general practitioners in tuberculosis. The Joint Tuberculosis Council stands for the policy thus outlined.



## NOTICES OF BOOKS.

## CONTINENTAL WORKS ON TUBERCULOSIS.

OUR German confrères are showing conspicuous activity in the pursuit of investigations relating to the complex problems which envelop tuberculosis. They are issuing numerous works dealing with all aspects of tuberculosis. With real scientific vision they are concentrating on the study of tuberculosis in early life, as is evidenced by the appearance of an imposing tome forming the first volume of what will surely be the most comprehensive and authoritative work on tuberculosis in children yet published in any land.<sup>1</sup> The work is a monumental one, and clearly must have a place in every medical library in the world. It is one which all who specialize in the study and treatment of tuberculosis, especially in the forms met with in infancy and childhood, cannot afford to neglect. The various sections are written by well-known experts, and include Dr. Lydia Rabinowitsch-Kempner of Berlin, Prof. Anton Ghon and Dr. Herbert Kudlich of Prague, Prof. Bruno Lange of Berlin, Dr. Wilhelm Weinberg of Stuttgart, Dr. Hermann Beitzke of Graz, Prof. Julius Bauer of Hamburg, Prof. Franz Hamburger of Graz, Prof. Stefan Engel and Dr. Selma Segall of Dortmund, Dr. Herbert Koch of Vienna, Dr. Berthold Epstein of Prague, Dr. Richard Priesel of Vienna, Dr. Max Zarfl of Vienna, Prof. Markus Hajek and Dr. Emil Wessely of Vienna, Prof. Rudolf Fischl of Prague, Dr. Gustav Liedermeister of Düren, Dr. Georg Simon of Aprath, Dr. Hans C. Wimmerberger of Salzburg, Prof. H. Kleinschmidt of Hamburg, Dr. Otto Wiese of Landeshut, Prof. Carl Leiner and Dr. Felix Basch of Vienna, Prof. E. Mayerhofer of Zagreb, Dr. Richard Wagner of Vienna, Prof. Joseph Igersheimer of Frankfurt, Dr. Rudolf Leidler of Vienna, Dr. Franz Haslinger of Vienna, Dr. Arvid Wallgren of Gotenburg, Drs. Ernest Moro and Walter Keller of Heidelberg, and Prof. Hans Vogt of Münster. Such an enumeration of names will in some measure indicate the importance of the enterprise. The volume is admirably produced, with clear type on good paper, and with an abundance of wisely selected and excellently presented illustrations. At the end of each section is a select bibliography, which fact alone establishes this work as one of world-wide value.

Artificial pneumothorax is, perhaps, the most valuable advance in the treatment of pulmonary tuberculosis of recent years. The pioneer work of Saugman in Norway and of Rivière, Burrell, and others in this country is well known. No. 34 in the Tuberkulose-Bibliothek is an excellent brochure by Dr. Katz, in which he shows that there is also a due appreciation of the importance of artificial pneumothorax in Germany.<sup>2</sup>

<sup>1</sup> "Handbuch der Kindertuberkulose." Unter Mitwirkung von Fachgenossen herausgegeben von Prof. Dr. St. Engel (Dortmund) und Prof. Dr. Cl. Pirquet (Wien). Ersten Band, SS. xii+886, mit 481 zum Teil farbigen Abbildungen. Leipzig: Georg Thieme, Antonstrasse 15-19. 1930. Price M. 125.

<sup>2</sup> "Die Soziale und Klinische Berechtigung zum künstlichen Pneumothorax (Pth.) in Kampf gegen die Tuberkulose" ["The Social and Clinical Justification for Artificial Pneumothorax (Pth.) in the Fight against Tuberculosis"]. By Dr. Georg Katz. With an introduction by Professor Dr. W. Zinn. Pp. 60. Tuberkulose-Bibliothek, No. 34. Edited by Professor Dr. Lydia Rabinowitsch. Leipzig: J. A. Barth. 1929. Price Brosch. Rm. 4.50; Rm. 3.80.

The statistical tables in the book reveal the increased duration of life bestowed on selected cases, and evidence is adduced concerning the social importance of artificial pneumothorax in aiding working capacity and ameliorating the lot of the consumptive. The figures given of deaths from tuberculosis are of special interest. Before the war on an average 90,000 persons died of tuberculosis annually in Germany. During the war the figures rose considerably, amounting to as much as 147,000 deaths in the year 1918. Since 1919 there has been a remarkable decrease in the number of deaths, the lowest and last figures recorded being 61,000 deaths in 1926. Artificial pneumothorax to some extent is responsible for this diminution in the mortality from tuberculosis.

A. S. M.

In 1921 Sir James Kingston-Fowler<sup>1</sup> wrote of X-ray examinations in pulmonary tuberculosis: "Useful as this aid to diagnosis has already proved, its value will probably greatly increase as time goes on and experience increases." This prophecy has been justified. No competent practitioner now makes a diagnosis without taking into consideration the X-ray appearances of the thorax. With improved apparatus and technique the X-ray picture of the tuberculous lung has become more clearly delineated. But X-ray examination has a further value which at present is not fully appreciated in this country. So long as physicians were restricted to inspection, percussion, and auscultation they could only detect tuberculosis when the physical signs assumed an abnormal character. Occasionally, surprise was felt at finding tubercle bacilli in the sputum of a patient free from physical signs of tuberculosis. Clinical observation, animal experiments, and post-mortem evidence enabled an account of the development of human tuberculosis to be framed, although many links were wanting in the chain of evidence. Today X-rays are rewriting the clinical pathology of the disease, and through their aid we are able to trace its origin and spread with greater exactitude in the living subject. This work has been specially studied in Germany. The second revised edition of Dr. Franz Redeker and Dr. Otto Walter's book is a mine of information on the development of tuberculosis in the adult.<sup>2</sup> There seems to be abundant evidence—as Fishberg has also pointed out—that many cases formerly regarded as apical tuberculosis are in reality extensions from deeper foci. The classification of types of tuberculosis adopted in this work is open to objection on the grounds of complexity; but the facts upon which it is based call for serious attention from the standpoints of diagnosis and treatment. The excellent X-ray illustrations deserve a word of praise.

A. S. M.

Dr. Jacques Stephani of Montana, Switzerland, the author of the fine work "La Tuberculose pulmonaire vue aux Rayons X," recently reviewed in this *Journal*, has now issued in the "Bibliothèque Scientifique," of the publishing house of Payot, a comprehensive popular handbook providing in non-technical French an exposition regarding

<sup>1</sup> J. Kingston-Fowler: "Pulmonary Tuberculosis." London, 1921, p. 174.

<sup>2</sup> "Entstehung und Entwicklung der Lungenschwindsucht des Erwachsenen" ["The Origin and Development of Pulmonary Tuberculosis in Adults"]. By Franz Redeker and Otto Walter. Second enlarged and improved edition. Pp. vi+275, with 168 illustrations in the text. Leipzig: Curt Kabitzsch. 1929. Price Brosch. Rm. 24; Gebunden Rm. 26.

tuberculosis of the lungs.<sup>1</sup> It is manifestly intended as a guide to the tuberculous and tuberculously disposed, for it sets forth in forty-two chapters lucidly expressed, informing, and helpful accounts of all essential facts relating to the causation, prevention, course and arrest of pulmonary tuberculosis. The work has been wisely conceived and well done. Dr. Stephani has followed in the footsteps of his distinguished father in devoting his life to the study of tuberculosis and the treatment of patients afflicted by the disease. We hope that it may be possible to provide an English edition, for there is much in Dr. Stephani's unique work which will be helpful both to patients and medical advisers in this country, and especially those who are interested in the climatic treatment of tuberculosis at Montana or in other Alpine mountain health stations.

Dr. Pierre Hullinger's exposition of his views on the treatment of tuberculosis is now available in French, German, and English editions.<sup>2</sup> In the latter is set forth the author's claim to have discovered a specific which can be "applied anywhere," and will enable patients to be treated "in the hospitals and nursing homes of the plain"! Chemotherapeutic measures provide the new hope. It is urged that "the sun has no specific qualities for the tubercle bacillus," and that "for tuberculosis the treatment of the future is the treatment in the plain." Artificial pneumothorax is discountenanced. The author advocates the use of a special formula of salts of copper, silver, tin, and manganese, administered by hypodermic injections, and claims that "we have found the specific for tuberculosis," and that all forms of tuberculosis react to the treatment. A considerable section of the book is devoted to illustrations and notes of a number of cases, with statements indicating "cure" in days or months. Dr. Hullinger is manifestly an enthusiast rather than a scientist, and makes extraordinary claims in dogmatic words, indicated in italics and special types, which do not impress the experienced therapist. Part II. of this strange book is entitled "What Every Tubercular Patient should Know," much of which is likely to perplex and discourage the ordinary sufferer from tuberculosis. Dr. Hullinger in his concluding chapter says "we shall give our exact formula some day"; meanwhile he desires "to make personally a large-scale practical application of our new treatment of tuberculosis in a sanatorium both in Switzerland and in another country."

From the publishing house of J. A. Barth of Leipzig we have received two co-ordinated papers which, although interesting, are too brief in presentation to warrant their ambitious titles. They are sketches, not comprehensive articles on their subjects.<sup>3</sup> Dr. Roesle has

<sup>1</sup> "La Tuberculose Pulmonaire: Guide du Malade et du Prédisposé." By Dr. Jacques Stephani of Montana. Pp. 314, with 26 figs. Paris: Payot, 1926, Boulevard Saint-Germain. 1929. Price 25 frs.

<sup>2</sup> "A New Treatment of Tuberculosis." By Pierre Hullinger, M.D., Physician of the Mont-Riant Nursing Home, Neuchâtel, Switzerland. Pp. 146, with 40 photographic and radiographic plates. London: H. K. Lewis and Co., Ltd. 1930. Price 8s; 6d.

<sup>3</sup> "Die Verbreitung und Behandlung der Tuberkulose in Überseeischen Ländern" ["The Extension and Treatment of Tuberculosis in Countries Overseas"]. By Dr. E. Roesle, Berlin. "Die Behandlung der Tuberkulose" ["The Treatment of Tuberculosis"]. By Professor Dr. A. Wolff-Eisner, Berlin. With 17 diagrams in the text. Leipzig: J. A. Barth. 1929.

dwelt chiefly on the extension of tuberculosis in the cities and towns of South America, and has assembled a series of statistical tables on the mortality of tuberculosis in South American countries which it would be difficult to find collated elsewhere. He also refers to the extension of tuberculosis in India, Japan, and other countries of Asia. Dr. Wolff-Eisner considers that the most hopeful prospect for treatment of tuberculosis lies in specific tuberculin therapy. In this connection he pays tribute to the monograph of Zinn and Katz, which has been reviewed previously in this Journal.<sup>1</sup> A. S. M.

Dr. Mecklenburg in his recently published monograph (Berliner Klinik, Heft 409) gives a clear exposition of the work done in prophylactic inoculation against tuberculosis in Germany both as regards the use of dead and of living attenuated cultures of tubercle bacilli.<sup>2</sup> Langer has been the chief protagonist of the thesis that protection is attainable by inoculation with a dead virus, while von Behring, Römer, Hamburger and Selter have maintained that efficacious immunization is only possible by employing living tubercle bacilli, suitably attenuated. The second view has been lately reinforced by Calmette's work with BCG. vaccine, and, as Mecklenburg points out, the experiments made and to be made with BCG. are of outstanding importance. Up to the present, however, neither the French nor the German work assures us that inoculation against tuberculosis by the use of living tubercle bacilli is devoid of risk in its application to the human subject. A. S. M.

#### THORACOSCOPY AND CAUTERIZATION IN TUBERCULOSIS.

The new work by Drs. Diehl and Kremer on Thoracoscopy and Cauterization indicates a considerable interest and, as its contents demonstrate, a much greater practice of this measure in Germany than in this country.<sup>3</sup> Its contents consist of chapters on various types of instruments with direct and indirect optical vision, the normal and pathological appearances encountered during endoscopy, indications for cauterization, and the results of the operation, including complications. Where the percentage of pneumothorax cases submitted to operation is so high indications must necessarily be wider than those generally accepted, and thoracoscopy is apparently performed in all cases in which pneumothorax is incomplete and bacilli persist in the sputum; cauterization is completed where possible. In 272 cases, complete pneumothorax after cauterization was obtained in 63 per cent., a further 2.5 per cent. became bacilli-free in spite of incomplete cauterization, and in a further 5.5 per cent. a satisfactory improvement resulted.

<sup>1</sup> Zinn and Katz: "Biologische Einwirkung von der Haut auf den gesunden und Tuberkulösen Organismus, Kutane Tuberkulindiagnostik und Therapie." Tuberkulose-Bibliothek. Beihefte zur Zeitschrift für Tuberkulose. Nr. 27, Leipzig: J. A. Barth. 1927.

<sup>2</sup> "Der gegenwärtige Stand der Schutzimpfung gegen Tuberkulose" ["The Present Position of Protective Inoculation against Tuberculosis"]. By M. Mecklenburg. Pp. 24. Leipzig: Fischers Med. Buchhandlung, H. Kornfeld. 1929.

<sup>3</sup> "Thorakoskopie und Thorakokaustik." Von Dr. K. Diehl, Dirigierender Arzt des Tuberkulose-Krankenhauses Waldhaus Charlottenburg Sommerfeld, Osthavelland, und Dr. W. Kremer. Pp. 90, mit einem bildnis und 53 zum teil farbigen abbildungen. Berlin: Verlag von Julius Springer, Linkstrasse 23. 1929. Price R.M. 20; Geb. R.M. 22.60

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The operation therefore resulted in great improvement in 71 per cent., no result was obtained in 21 per cent., and 8 per cent. were made worse. The complications encountered were: (1) Secondary effusions in 16 per cent., in 9 per cent. associated with pyrexia, in 7 per cent. afebrile. In the majority the effusion was reabsorbed. (2) Tuberculous empyema resulted in 3.1 per cent. (3) Mixed infection occurred late in three cases, two of whom died and the other recovered after expectoration of the secondary empyema. (4) Contraction of the pneumothorax following effusion resulted in 3 per cent. (5) Hæmorrhage from cauterization was considerable in 2 per cent. and fairly severe in 3 per cent. The operative mortality was 0.7 per cent., the two deaths resulting from hæmorrhage and from early lung perforation respectively. This small volume gives an extremely clear and concise account of its subject from the practical point of view, and the results therein detailed give food for thought as to whether this method is employed in this country as frequently as it is indicated. A number of well-chosen illustrations, including skiagrams and endoscopic coloured plates, add considerably to the value of the book.

A. TUDOR EDWARDS, F.R.C.S.

### CARDIOVASCULAR TUBERCULOSIS.

Dr. A. Pic and L. Morenas have written a book which will interest physicians dealing with tuberculous cases.<sup>1</sup> Their volume provides a description of tuberculosis of the pericardium, myocardium, and endocardium. What is called by the author idiopathic cardiac hypertrophy without evidence of renal disease or high blood pressure is dealt with, and its possible tuberculous origin discussed. The heart of the tuberculous subject, functional disturbances, tachycardia, blood pressure in tuberculosis, tuberculosis of bloodvessels, all receive detailed attention. The work is of undoubted value in thus collecting together some of the rarer manifestations of tuberculosis. There are several interesting illustrations, one showing the skiagram after the replacement by oxygen of a tuberculous pericardial effusion. Treatment and operative technique of certain conditions are dealt with.

F. G. CHANDLER, M.D., F.R.C.P.

### X-RAY EXAMINATION OF THE CHEST.

Dr. H. Philippi has written an interesting book on the clinical and Röntgenological examination of the lungs.<sup>2</sup> As might be expected from the author's experience as a sanatorium superintendent at Davos, his book deals chiefly with pulmonary tuberculosis, other respiratory diseases being discussed primarily with a view to differential diagnosis.

<sup>1</sup> "La Tuberculose Cardio-Vasculaire le Cœur des Tuberculeux." Par Adrien Pic, Médecin des Hôpitaux, Professeur de Clinique Médicale; et Léon Morenas, Ancien Chef de Clinique Médicale à la Faculté de Médecine de Lyon. Pp. 300, avec 15 figures dans le texte et 4 planches en couleurs hors texte. Paris: Librairie Octave Doin, Gaston Doin et Cie, Editeurs, 8, Place de L'Odéon. 1929. Price 65 francs.

<sup>2</sup> Die Klinische und röntgenologische Untersuchung der Lungenkranken: Altes und Neues zur Diagnostik und Symptomatologie der Lungenkrankheiten, unter besonderer Berücksichtigung der Lungentuberkulose. Von Dr. Hans Philippi, Facharzt für Krankheiten der Respirations-organe in Basel früher Sanatoriums. Chefarzt in Davos. Pp. 119. München: J. F. Lehmann. 1929. Preis: Geheftet, 4.50; Gebunden, 6.50.

The work opens with a chapter on history-taking, in which attention is called to a number of details, which although of importance have to be searched for with particular care. The following chapters dealing with inspection, palpation, percussion, and auscultation are well written and clearly arranged, but contain little new or controversial matter. The author rightly considers that no examination of a patient suspected of tuberculosis can be completed without the help of X-rays. The chapter devoted to this subject gives, therefore, a detailed account of how X-rays may best be used in diagnosis. The importance of radioscopic examination is stressed, as in this process the patient may be turned in such a way that any suspected spot can be scrutinized and if necessary radiographed in the most favourable position. Radiography has the advantage in the diagnosis of small cavities and of "initial infiltration," both of which demand more accuracy of detail than is possible in a screen examination. The book ends with a chapter on temperature taking—the author discusses the oral and rectal methods, but does not commit himself to any definite preference for either. Although psychic factors may undoubtedly cause a slight rise in temperature, the student is warned against underestimating the importance of a slightly raised temperature, as in the great majority of cases these are manifestations of active disease.

ANDREW MORLAND, M.B.

#### MANUALS FOR MEDICAL ADVISERS AND WORKS OF REFERENCE.

Medicine is a science and art which is ever progressive, and its advancement in recent years is constantly being speeded up. Every medical adviser should make it a matter of conscience to work steadily through an up-to-date comprehensive general handbook of medicine at least once a year. This is certainly a duty which tuberculosis officers and other specialists cannot afford to neglect. To all medical advisers and senior students we commend the admirable textbook ably edited by Dr. Frederick W. Price.<sup>1</sup> The first edition appeared in 1922, and at once was welcomed as a worthy representative textbook of British Medicine. After various reprintings the work is now available in a third edition. It is appropriately dedicated to the memory of Sir Clifford Allbutt, the universally beloved Regius Professor of Physics in the University of Cambridge. Dr. Price has been fortunate in associating with himself in the production of this authoritative and standard work twenty-six well-known leaders in the Hospital Schools of London. The volume is a remarkably comprehensive work, but by the use of thin India paper it has not been rendered unduly bulky or heavy. Many of the sections have been wholly or largely re-written, and a very considerable number of new articles have been added. There are excellent descriptions of the various forms of tuberculous disease. Dr. Price's monumental textbook is undoubtedly the best British treatise on the practice of medicine available for the English-speaking student and practitioner of medicine.

<sup>1</sup> "A Textbook of the Practice of Medicine." By Various Authors. Edited by Frederick W. Price, M.D., F.R.S. (Edin.). Third edition. Pp. xxxviii + 1871, with 114 illustrations. London: Humphrey Milford, Oxford University Press, Falcon Square, E.C. 1. 1929. Price 36s.



"Clinical Methods," which first appeared in 1897, and for over thirty years has been associated with the names of Hutchison and Rainy, has reached its ninth edition (eighty-seventh thousand), and Dr. Robert Hutchison, the senior author, is now associated in the editorship with a junior colleague of the London Hospital in place of the late Dr. Rainy.<sup>1</sup> Hutchison and Rainy have been familiar names to medical students in all parts of the land for long years, and it is to be hoped that Hutchison and Hunter will continue to be known and blessed in happy association for many years to come. The new edition has undergone thorough revision, and in the preparation of special sections the authors have been assisted by recognized authorities. This work is an indispensable guide-book not only for the student but for all practitioners who desire to keep up to date. The sections on the examination of the chest, the signs of pulmonary disease, tuberculous affections, and the examination of sputum and pathological fluids are all excellent. The new edition appears in its customary red covers, handy in shape, manageable in size, excellently printed and effectively illustrated.

Professor Bard's little book on emphysema is a useful treatise on the diagnosis and treatment of the disease, and can be recommended to those interested in the subject.<sup>2</sup> The author divides cases into four groups: General hyperactivity of lung; local hyperactivity—*e.g.*, compensatory emphysema in the region of an area of fibrosis; interference with normal respiratory movement; and atrophic forms. Treatment usually depends on the nature of the cause, but various methods of prevention and alleviation are described. The surgical procedures of dividing the sternum or some of the costal cartilages are discussed, and it is rightly observed that such methods are not free from danger and have moreover so far failed to give satisfactory results.

Mr. Zachary Cope's studies in minor surgery will appeal to all progressive post-graduates faced with practical problems.<sup>3</sup> It is an admirable supplementary volume to the standard textbooks, and will be appreciated by young surgeons and general practitioners having to undertake procedures in minor surgery. One of the most valuable sections is that devoted to the diagnosis and treatment of infections of the hand, in which is an excellent exposition of Kanavel's views together with novel superposed pictures. The volume contains practical studies on the use and abuse of antiseptics and the treatment of wounds, the principles of treatment of acute inflammation, common mistakes in the diagnosis and treatment of acute abscess, common sprains and their treatment, ambulatory fractures and their treatment, the treatment of retention of urine due to enlarged prostate, and some

<sup>1</sup> "Clinical Methods: A Guide to the Practical Study of Medicine." By Robert Hutchison, M.D., F.R.C.P., and Donald Hunter, M.D., F.R.C.P. Ninth Edition. Pp. xiii+684. With 18 colour and 2 half-tone plates and 152 figures in the text. London: Cassell and Co., Ltd. 1929. Price 12s 6d.

<sup>2</sup> "L'Emphysème: Diagnostic et Traitement." By L. Bard, Professeur honoraire de Clinique médicale des Universités de Genève et de Lyon. Pp. 60, with 2 plates. Paris: Gaston Doin and Co., 8, Place de l'Odéon. 1929. Price 16 francs.

<sup>3</sup> "Some Principles of Minor Surgery." By Zachary Cope, M.S., M.D. (Lond.), F.R.C.S. (Eng.), Surgeon to St. Mary's Hospital, Paddington, and to the Bellingbroke Hospital. Pp. xi+159, with 82 figures. London: Humphrey Milford, Oxford University Press, Amen House, Warwick Square, E.C. 4. 1929. Price 10s. 6d.



minor operations. The volume is admirably produced in a form which we are now accustomed to expect in the Oxford Medical Publications.

Mr. H. S. Souttar of the London Hospital has met a real need by the issue of his helpful introduction to radium-therapy.<sup>1</sup> It is an ideal primer for the medical practitioner desiring a non-technical account of the nature and physical properties of radium, and especially such powers as can be applied in the treatment of cancer and other morbid conditions affecting the human subject. The methods of employing radium-therapy now in general use are simply but explicitly described. Records and skiagrams and other illustrations are presented from the author's own practice. This little book furnishes an excellent general view of the new field of surgery now made available by the use of radium, but still remaining to a large extent a *terra incognita*. Every progressive doctor should study Mr. Souttar's timely and serviceable manual.

Mr. T. Henry Treves-Barber's practical manual on the essentials of the modern ambulatory treatment of varicose veins and their complications is a work which will be of service to medical practitioners.<sup>2</sup> It is a survey of the whole field based upon the author's own personal experience, and is thoroughly practical and unburdened by names of authors or records of cases. In hospitals, sanatoria, and dispensaries dealing with tuberculous cases patients with varicose veins are often met with, and in some instances at least, especially where graduated exercises in walking are desirable, the handicapping lesions may with advantage be dealt with. Mr. Treves-Barber's manual provides all necessary instruction.

Dr. A. H. Douthwaite has written a really sensible and helpful little book on the strange group of disorders which in our ignorance we find it convenient to label Rheumatoid Arthritis.<sup>3</sup> It is divided into two parts, dealing respectively with ætiology and treatment. In the former section there are chapters on classification, the rôle of local infection, the endocrine factor, and a discussion of metabolic changes. The book is of special value on account of its valuable suggestions for treatment in both the early and developed stages of rheumatoid arthritis, as well as notes on the alleviation of crippling deformities. There is a short bibliography. Every medical practitioner having to deal with rheumatoid arthritis should peruse Dr. Douthwaite's concise and timely manual.

Dr. C. E. P. Brooks has written an authoritative manual on the distribution of climates.<sup>4</sup> This, while of special interest to medical

<sup>1</sup> "Radium and its Surgical Applications. By H. S. Souttar, D.M., M.Ch. (Oxon.), F.R.C.S. (Eng.), Surgeon, London Hospital. Pp. vii+60, with 3 plates and other figs. London: William Heinemann (Medical Books), Ltd., 99, Great Russell Street, W.C. 1. 1929. Price 7s. 6d.

<sup>2</sup> "The Treatment of Varicose Veins of the Lower Extremities by Injections." By T. Henry Treves-Barber, M.D., B.Sc. With a Foreword by H. W. Carson, F.R.C.S. Pp. vii+120, with 11 figs. Bristol: John Wright and Sons, Ltd. 1929. Price 6s.

<sup>3</sup> "The Treatment of Rheumatoid Arthritis." By A. H. Douthwaite, M.D., F.R.C.P. (Lond.), Assistant Physician, Guy's Hospital. Pp. x+80, with 2 figs. London: H. K. Lewis and Co., Ltd. 1929. Price 6s.

<sup>4</sup> "Climate: A Handbook for Business Men, Students, and Travellers." By C. E. P. Brooks, D.Sc. Pp. 199. London: Ernest Benn Ltd., Bouverie House, 154, Fleet Street, E.C. 4. 1929. Price 10s. 6d.

advisers, is a work which should be read by all who travel, whether for business and professional duties, or in the pursuit of health, recreation, education, and pleasure. All interested in meteorology will find this collection of official data, with its informing charts, instructive tables, and bibliographical references, a work of permanent value. In the treatment of tuberculosis and certain other morbid conditions climatic conditions must receive consideration. Dr. Brooks has furnished medical practitioners and others who have to take note of climate in arranging for the welfare of patients with a succinct and helpful guide to the study of a complex subject. The work consists of seven chapters, dealing with the North Temperate Regions, "Mediterranean" Climates, North Tropical Climates, Equatorial Climates, Sub-Tropical and Temperate Climates of the Southern Hemisphere, and the Polar Regions. There is a serviceable index.

Mr. A. Manby Lloyd's handbook on centres in England which attract pilgrims from the West has been prepared specially for American visitors.<sup>1</sup> It provides illustrations and concise, informing, helpful notes of historical places which appeal particularly to visitors from the United States. Certainly every American who is taking a holiday in the mother country and is wishful to make the most of time and opportunities in securing contact with characters, events, and localities connected with American history should procure a copy of Mr. Lloyd's instructive and pleasing guide-book.

All who are planning to engage in winter sport among the snow and ice of mountain stations should peruse Mr. Becket Williams's volume of impressions based on personal visits to centres in Switzerland, Austria, France, Scandinavia, and other European winter-sports popular resorts. The book is not only a collection of racy sketches, instructive and amusing, but also contains much practical and helpful information which will be invaluable to those who are taking a mid-winter holiday for health or recreation, with the delights of skiing, skating, tobogganing, and the like, and enjoying the exhilaration of mountain air.<sup>2</sup> The work is effectively illustrated with fine photographs, including pictures of Wengen, the Hahnenmoos Pass at Adelboden, Davos, Arosa, St. Anton, St. Christoph, Stuben, Kitzbühel, Semmering, Mount Revard, Mégeve, Fistaroquet, Finse, Fefor, Cortina, Clavières, and the Black Forest. There is an excellent index with names of places arranged under countries.

Curling under Alpine conditions of scenery and weather at this season of the year is a health-giving, mind-resting recreation much beloved by many doctors and other mature men and some adult women. Scotland is no longer the chief centre for the "roaring game," for now each winter a large number of curling enthusiasts go to Switzerland to participate in their favourite recreation. Every curler and would-be curler should procure the guide-book on curling written by Messrs. Mobbs and McDermott. It is the only book of its kind, and is an indispensable companion for everyone who is going to Switzerland

<sup>1</sup> "Notes on American Shrines in England." By A. Manby Lloyd. Pp. 100, with 17 illustrations and maps. London: Talbot and Co., 13, Paternoster Row, E.C. 4. 1929. Price 5s.

<sup>2</sup> "Winter Sport in Europe." By Becket Williams. Pp. viii + 256, with 24 full-page illustrations. London: G. Bell and Sons, York House, Portugal Street, W.C. 2. 1929. Price 7s. 6d.

for curling.<sup>1</sup> This handsome and finely illustrated volume is a unique handbook affording a history of curling and a complete account of the rules, conduct, theories and tactics of the game as played in Switzerland. The illustrations are in part reproduced from slow-motion films to indicate correct action. There is a useful glossary containing past and present words used in connection with curling, and also a very serviceable list with many pictures of winter resorts in Switzerland where there are facilities for curling.

Messrs. Methuen and Co. have recently issued two charming works by Mr. H. V. Morton, "In Search of England" and "In Search of Scotland," which we commend to all in search of health and happiness.<sup>2</sup> The author has a great gift for picturesque exposition and has written several attractive books on London. These volumes provide ideal gifts for those who in search of health or for other reasons have had to leave the homeland. They are equally acceptable for those who in car or on foot can explore the natural glories and centres of human interest in Great Britain. We can advise no better restorative for weary doctors after a trying day's work than to take Mr. Morton as companion and tour with him through England and Scotland.

Mr. A. Milsom has prepared a valuable volume on the organization and work of kitchens, stores, and like departments of an institution, which will be invaluable to masters, matrons, stewards, storekeepers, and all others responsible for the conduct of food preparation and the care of other materials used in hospitals, sanatoria, and similar institutions.<sup>3</sup> The author has had exceptional experience in this country and in New Zealand, and his expositions—detailed, clear, and practical—deal with all departments of institutional activity and every kind of material and service connected with the life of an institution. Certainly those connected with the administration of hospitals and the like establishments should procure and study Mr. Milsom's unique handbook.

Motorists generally are indebted to the Temple Press Manuals for much up-to-date and serviceable information regarding motors and motoring. Among the series there are two volumes of outstanding importance and value.<sup>4</sup> "The Motor Manual" provides an indispensable guide in readily understood language regarding the working principles,

<sup>1</sup> "Curling in Switzerland: A Treatise on the Principles of the Game, and where and how to play it." By A. Noel Mobbs, O.B.E., and F. McDermott. Pp. 223, with 102 photographs and 34 diagrams. London: J. W. Arrowsmith (London) Ltd., 6, Upper Bedford Place, Russell Square, W.C. 1. 1929. Price 10s. 6d.

<sup>2</sup> "In Search of England." Eighth edition. Pp. 232, with 8 plates in colour, 8 other illustrations, and a map.—"In Search of Scotland." Third edition. Pp. 288, with 16 illustrations and a map. By H. V. Morton. London: Methuen and Co., Ltd., 36, Essex Street, W.C. 2. 1929. Price 7s. 6d. each.

<sup>3</sup> "Handbook on Kitchen and Stores and Institution Administrative Departments." By A. Milsom, Institution Master, and formerly Clerk and Storekeeper, New Zealand Government Asylums Service, Master of Bristol and other Provincial and London Institutions, etc. Second edition, revised and enlarged. Pp. viii+545. London: Charles Knight and Co., Ltd., 227-239, Tooley Street, S.E. Also from the Author: Hill House, Etchinghill, Shorncliffe, Folkestone, Kent. 1929. Price 12s. 6d.

<sup>4</sup> "The Motor Manual." Twenty-seventh edition; 770th thousand. Rewritten and reillustrated. Price 2s. 6d.—"The Petrol Engine." Second edition. Rewritten and reillustrated. Price 3s. 6d. London: Temple Press, Ltd., 7-15, Rosebery Avenue, E.C. 1.

construction, adjustment, and economical maintenance of modern cars, together with information as to motoring law, road and traffic rules, and touring. "The Petrol Engine" furnishes a concise, lucid description of the principles and construction of all types of petrol engines for use in connection with motor cars, cycles, and boats; commercial vehicles and aeroplanes. It is a thoroughly practical manual and will be invaluable to car owners and all who make use of petrol and gas driven engines. There is an informing chapter on electric lighting and stationary power sets. The book is admirably illustrated.

All who in sanatoria and open-air schools are interested in horticulture and poultry and activities suitable for the smallholder should procure a copy of the Year Book issued by *The Smallholder*.<sup>1</sup> It is a condensed and up-to-date guide to gardening, allotment work, pig keeping, smallholdings work, dog management, poultry keeping, rabbit breeding, bee management, garden law, poultry and stock doctoring, and the like, and is a veritable "Enquire Within" on all practical matters relating to enterprises which appeal to the smallholder.

Doctors, patients, and others desiring to visit South America for health or holiday should procure the 1930 edition of "The South American Handbook."<sup>2</sup> This is a unique and indispensable guide and reference book to a continent in rapid evolution. Lord D'Abernon's mission has stimulated interest in Britain's relations with this but little known western section of the world. In this directory the business man will find all his needs met; the tourist also will discover information of service about places, people, and chief sights. There is an excellent map.

Professor C. R. Marshall and Mr. H. D. Griffith of the University of Aberdeen have provided would-be microscopists with a practical introduction to the theory and employment of the microscope as a scientific instrument.<sup>3</sup> The brochure is based on lectures and practical work in connection with the class of medical physics in the University of Aberdeen, and is an ideal guide to students and others desiring information regarding the fundamental principles on which microscopy is based. The illustrations which accompany the lucid and concisely arranged text add greatly to its practical value. All who possess and employ a microscope should procure a copy of this serviceable guide.

Dr. W. Harrison Martindale deserves universal thanks for his notable world-wide service in maintaining "The Extra Pharmacopœia" in perfect efficiency. We recently directed attention to the appearance of Vol. I. of the nineteenth edition (*BRITISH JOURNAL OF TUBERCULOSIS*, October, 1928, p. 193), and now we are glad to wel-

<sup>1</sup> "The Smallholder, Gardener, and Poultry-keeper Year Book, 1930." Nineteenth year of issue. Pp. 255, with illustrations. London: Offices of *The Smallholder*, C. Arthur Pearson, Ltd., 18, Henrietta Street, W.C. 2. Price 2s.

<sup>2</sup> "The South American Handbook, 1930" (seventh annual edition): A Year Book and Guide to the Countries and Resources of Latin America, inclusive of South and Central America, Mexico, and Cuba. Edited by H. Davies. Pp. lxxx+746. London: Trade and Travel Publications, Ltd., 14, Leadenhall Street, E.C. 3. 1930. Price 2s. 6d.; by post 3s.

<sup>3</sup> "An Introduction to the Theory and Use of the Microscope." By C. R. Marshall, M.A., M.D., LL.D., Professor of Materia Medica and Therapeutics in the University of Aberdeen, and H. D. Griffith, B.A., Carnegie Teaching Fellow in Natural Philosophy in the University of Aberdeen. Pp. viii+90, with 29 figs. and 3 plates. London: George Routledge and Sons, Ltd., Broadway House, 68-74, Carter Lane, E.C. 4. 1929. Price 3s. 6d.

come the companion Vol. II.<sup>1</sup> This work should be in the possession of every medical adviser and available in all hospitals, sanatoria, research laboratories and centres where chemical, pharmaceutical, and therapeutical work is being carried out. The volume has been brought up-to-date, and deals mainly with recent developments in diagnosis and experimental research. There are sections on new drugs and chemicals; radium; radiology; clinical, water, milk, food, and other analyses; vitamins; synthetic chemicals; and sophistication of foods. Tuberculosis officers and others interested in tuberculosis will find much of value in the sections dealing with the relationships between human and other forms of tuberculosis, the infectivity of tuberculosis, and tuberculous milk. There are particulars regarding staining methods for T.B. complement fixation test, tuberculins, etc. May this unique reference book ever continue in its beneficent service to medicine and the associated sciences.

Drs. T. T. B. Watson and A. Welply have compiled a directory of London's health services which will be invaluable to doctors and others engaged in medical work and other endeavours making for the prevention and arrest of disease.<sup>2</sup> The work contains a series of sections arranged under alphabetical headings, giving general information regarding practical matters such as a medical adviser is expected to know. The greater part of the volume affords particulars as to facilities afforded by public health authorities and arranged under the separate London metropolitan boroughs. The preparation of the directory has manifestly entailed considerable trouble and expense, and it is to be hoped that it will receive such a sympathetic reception that an annual issue may be possible.

The new "Wellcome" Photographic Handbook<sup>3</sup> appears in the customary form and is a worthy successor to the preceding issues. This is an indispensable guide and diary for all photographers. The 1930 edition is full of practical information and diary spaces and pages for records of negative exposures. Neatly bound, with pencil attached, it is a valuable companion, which can be carried in a jacket pocket ready for instant service.

Dr. P. J. Cammidge has prepared a series of tables furnishing data respecting the provision of "average servings" of food, which will be of assistance in caring for diabetic subjects.<sup>4</sup>

Dr. W. E. Fitch's serviceable and much-approved Pocket Medical Formulary is now available in a new and sixth edition, enlarged and thoroughly revised.<sup>5</sup> This work is justly popular in America, and

<sup>1</sup> "The Extra Pharmacopoeia of Martindale and Westcott." Revised by W. Harrison Martindale, Ph.D., Ph.Ch., F.C.S. Nineteenth edition. Vol. ii. Pp. xxxviii + 759. London: H. K. Lewis and Co., Ltd., 136, Gower Street, W.C. 1. 1929. Price 22s. 6d. The two volumes can be sent to any part of the world, post free, for 50s.

<sup>2</sup> "The Medical Signpost and Directory of the London Health Services, 1930." Compiled by T. T. B. Watson, M.B., B.Ch. (Camb.), and Alfred Welply, M.D. Pp. 217. Enfield, Middlesex: Stanley Woodfield. 1930. Price 10s., post free.

<sup>3</sup> "Wellcome" Photographic Exposure Calculator, Handbook and Diary." London: Burroughs Wellcome and Co. 1930. Price 1s. 6d.

<sup>4</sup> "A Diet Summary in Average Servings for Diabetics and Others Suffering from Disorders of Metabolism." By P. J. Cammidge, M.D. (Lond.). Pp. 8. London: Baillière, Tindall and Cox. 1929. Price 1s.

<sup>5</sup> "The New Pocket Medical Formulary, with an Appendix." By William Edward Fitch, M.D. Sixth edition, revised and enlarged. Pp. x + 501. Philadelphia, Pa., U.S.A.: F. A. Davis Company, 1914-16, Cherry Street. 1929. Price \$3.00.

deserves to be known and used by medical practitioners, students, and pharmacists in this country. The subject-matter has been collected from many reliable sources. Diseases are arranged in alphabetical order with accompanying clinical hints and formulæ. There is an effective system of double cross-indexing. A helpful table of differential diagnoses is also provided. Under the heading of Tuberculosis are suggestive notes, and under Cough, Phthisis, and Scrofula numerous excellent formulæ. The volume contains much else of value, such as Diet Lists, Posological and Obstetrical Tables, Weights and Measures, and a Physician's Interpreter in four languages. It should be noted that all formulæ are presented so as to conform with the latest revision of the United States Pharmacopœia.

Among recent Special Reports issued by the Ministry of Health are Nos. 54 and 56, dealing with certain risks resulting from vaccination and undulant fever.<sup>1</sup>

We have received a specimen number of *Endokrinologie*, a journal devoted to the study of the internal secretions, directed by Professor Dr. Leon Asher of Berne and Professor Dr. Artur Biedl of Prague and edited by Professor Dr. Hans Gunther of Leipsic. *Endokrinologie* contains a number of original articles and also a useful series of abstracts from the current literature. The association of disorders of the endocrine glands (e.g., the thyroid gland) and tuberculosis makes a journal of this character specially interesting to tuberculosis workers. It is published by J. A. Barth, Leipsic.

The Editor of the *British Journal of Actinotherapy and Physiotherapy* has issued a brochure consisting of statements collected from authoritative and official sources regarding the value of actinotherapy.<sup>2</sup>

The current number of *Sunlight*, the journal of the Sunlight League (price 1s.), issued from 29, Gordon Square, W.C. 1, has a portrait frontispiece of the Right Hon. George Lansbury, M.P., the First Commissioner of Works, and contains a paper by Dr. C. W. Saleeby on "Infra-Red Rays," a communication by Dr. Kathleen Vaughan on "Open-Air Life and Healthy Motherhood," and an illustrated article on "Practical Dress Reform."

We are indebted to the Rockefeller Institute for Medical Research, New York, for copies of "Studies from the Rockefeller Institute for Medical Research," issued periodically, and containing reprints of records, reports, and articles presenting the results of original work.

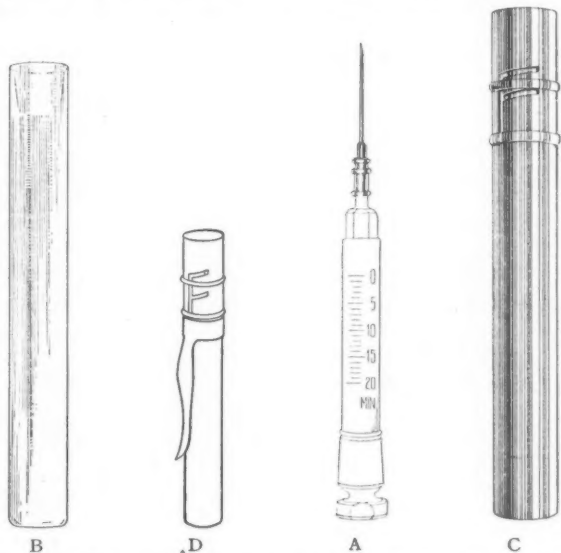
<sup>1</sup> "Report to the Committee on Vaccination on an Anatomical Investigation into the Routes by which Infection may pass from the Nasal Cavities into the Brain." By W. E. Le Gros Clark, D.Sc., F.R.C.S. Pp. 27.—"Undulant Fever, with Special Reference to Animal Sources of Infection, and the Possibility of its Prevalence in England and Wales." Pp. 78. By Captain W. Dalrymple-Champneys, M.A., D.M. (Oxon.), M.R.C.P. (Lond.). London: H.M. Stationery Office. 1929. Prices 1s. and 1s. 6d.

<sup>2</sup> "A Review of Artificial Light Therapy, showing its Proved Value in Medical and Surgical Practice." Compiled by R. King Brown, B.A., M.D., D.P.H. Pp. 32. London: The Actinic Press, Ltd., 17, Featherstone Buildings, W.C. 1. 1929. Price 2s.



## PREPARATIONS AND APPLIANCES.

THE "AGLA" HYPODERMIC SYRINGE with the new spirit-tight container and fitted with a detachable pocket-clip is an indispensable companion for the busy practitioner.<sup>1</sup> This outfit provides means whereby a syringe with rustless steel needle immersed in alcohol in



THE "AGLA" HYPODERMIC SYRINGE, SPIRIT-TIGHT CONTAINER, AND DETACHABLE POCKET-CLIP.

A. Syringe. B. Glass container. C. Metal Case. D. Detachable pocket-clip.

position ready for immediate use can be carried like a fountain-pen in the vest pocket. The accompanying illustrations show the elements in this serviceable combination. Each syringe is graduated up to 1 c.c. as well as up to 20 minims. The outer metal protecting case is fitted with a cap having two bayonet catches. (The price is 21s. complete, including clip.)

The EVER-READY FOUNTAIN-PEN LAMP is a pocket companion for every practising doctor and nurse.<sup>2</sup> Like an ordinary fountain-pen it can be readily carried in the waistcoat pocket, or attached by means of the customary clip to the inside of a handbag. A spatula is available, so furnishing ready means for the impromptu examination of a throat anywhere at any time. The lamp is of course ready to serve for

<sup>1</sup> The "Agla" Hypodermic Syringe, as described above, is supplied by Burroughs Wellcome and Co., Snow Hill Buildings, London, E.C. 1.

<sup>2</sup> Particulars of the Fountain-Pen Lamp and other lamps, suited to medical, nursing, and general requirements, can be obtained on application to the Ever Ready Company (Great Britain), Ltd., Hercules Place, Holloway, N. 7.



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the general purposes of a pocket flash-light. The battery is a standard one, and although small gives excellent service.

The BATTERY URINARY HYDROMETER, designed by Dr. G. Ramsey Phillips, is a valuable means for facilitating clinical work.<sup>1</sup> Its chief features are indicated in the annexed figure.

It enables urine to be drawn up from any kind of vessel, the specific gravity

estimated, and then discharged into a test-tube, all with a minimum of trouble and no difficulty with spilling or messing of fingers. The customary cleansing of pipette, urinometer, and urine glass is reduced to the simple procedure of drawing clean water into the apparatus and squirting it out again. (The price is 7s. 6d.)

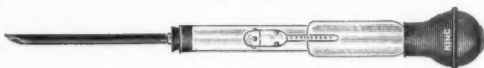
The POCKET URINE TESTING CASE, an illustration of which is appended, will be of value to medical practitioners, including tuberculosis officers and others called to undertake domiciliary visitations.<sup>2</sup> It consists of a neat conveniently-shaped pocket receptacle containing a plated spirit-lamp, an ivory scale urinometer, two test-tubes, litmus books, and two glass-stoppered bottles for Fehling's solution and acetic or salicyl-sulphuric acids, or any other reagents which the doctor may desire. (The price is 9s. 6d.)

The STERICASE is an ingenious contrivance which is intended to serve as a combined sterilizer and shock-proof container for the clinical thermometer which should be of service to doctors and nurses when dealing with tuberculous and infectious cases.<sup>3</sup> The Stericase, which is unbreakable, no glass being used in its construction, is filled with suitable germicidal solution, and the thermometer is then inserted and held in position by the patented special holder-top. The rolled gold clip flush-fitted attached to the case enables all to be carried securely in the waistcoat pocket. (The price complete, without thermometer, is 4s.)

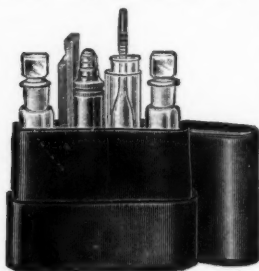
<sup>1</sup> The Phillips Battery Urinary Hydrometer is supplied by A. Charles King, Ltd., 34, Devonshire Street, W. 1.

<sup>2</sup> The Pocket Urine Testing Case is supplied by J. Gardner and Son, 32, Forrest Road, Edinburgh.

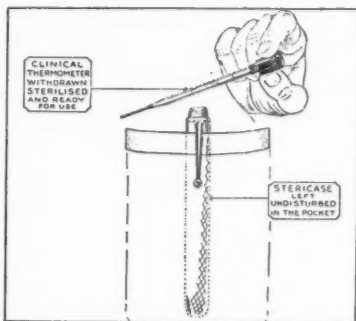
<sup>3</sup> The Stericase is made by Raphaels, Ltd., Hatton Garden, E.C. 1, and supplied by the Medical Practitioners' Union Agency, Ltd., 56, Russell Square, W.C. 1.



THE BATTERY URINARY HYDROMETER.



THE POCKET URINE TESTING CASE.

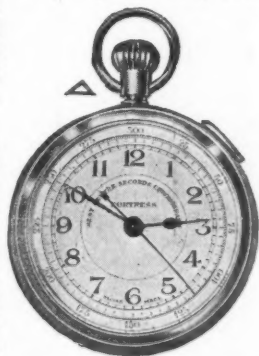


THE POCKET STERICASE.

The BERSHAW BOOK REST is a desirable luxury for the healthy and almost a necessity for the sick and delicate; indeed, it is a serviceable novelty which every book lover and reader will welcome.<sup>1</sup> There are many forms of book holders, but this is one of the best. It is excellent for patients in bed or sitting up. For tuberculous and other cases undergoing open-air treatment it is ideal. (The price ranges from 10s. to 25s. according to wood and decoration.)

The INKOGRAPH PENCIL-POINTED PEN is a novelty which doctors, nurses, and all connected with hospitals, sanatoria, and other institutions will find of service.<sup>2</sup> It is claimed for it that it will do everything that a fountain-pen can do. There are various special exclusive features which make this pen notable. With it writing runs as easily as with a lead pencil, and a steady constant supply of ink is always available. Three or four copies can be made with a good carbon, and the original in ink. The hard, smooth, rounded, ball-like point of the pen glides easily over even rough paper. A patent automatic 14-carat gold feed prevents clogging, and there is no complicated mechanism to get out of order. We can thoroughly commend the Inkograph as a desirable pocket companion. (The price ranges from \$1.50.)

The ARNOLD STOP-WATCH is a reliable, convenient, and inexpensive recording instrument which medical advisers, scientific research workers, as well as general practitioners and students, will appreciate.<sup>3</sup> It functions as an ordinary timepiece as well as serving as a stop-watch. For everyday service this type of watch is very effective, meeting the needs of scientists and sportsmen, doctors, nurses, and travellers generally. (The prices range from 7s. 6d. to £5.)



THE ARNOLD STOP-WATCH.

The BRAILSFORD COPPER BED WARMER will be sure of a welcome in hospitals, sanatoria and other institutions, as well as in private dwelling houses during the cold nights of winter.<sup>4</sup> It is an elongated receptacle of extra stout copper and of size adequate to keep the whole bed comfortably warm. It has a strong, reliable screw stopper, and is of the best workmanship. We commend this serviceable, reliable, and durable bed warmer to all, but especially to doctors and nurses who understand the importance of conserving a patient's powers and maintaining his comfort by providing for the protection from cold. (The price ranges from 6s. according to size.)

The I \* XL SAFETY RAZOR BLADES deserve to be known and used by all who have safety razors taking blades of the Gillette or standard type.<sup>5</sup> They are of excellent quality, give reliable results, remain

<sup>1</sup> The Bershaw Book Rest is supplied by A. W. Gamage, Ltd., Holborn, E.C. 1.

<sup>2</sup> Full particulars regarding the Inkograph can be obtained from the makers, the Inkograph Company Inc., 159-201, Centre Street, New York City, U.S.A.

<sup>3</sup> The Arnold Stop-watches are manufactured by A. Arnold and Co., 17, Elmcroft Avenue, Golder's Green, N.W. 11.

<sup>4</sup> The Brailsford Copper Bed Warmer is manufactured by Brailsford Brothers, Sheet Metal Workers and Coppersmiths, Regent Street South, Barnsley, Yorks.

<sup>5</sup> The I \* XL Safety Razor Blades are made by George Wostenholm and Son, Ltd., Cutlery Manufacturers, Washington Works, Sheffield.

effective for a long time, and can be obtained in cartons containing five or ten blades.

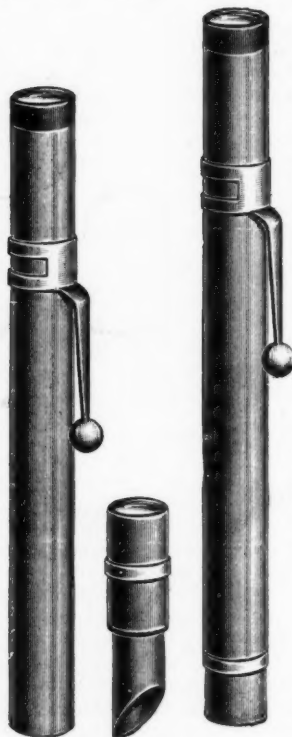
The MEDIPRAC HAND MICROSCOPE is a scientific novelty which will be of service to medical practitioners as well as to students and others who desire to study tissues and textures under high magnification.<sup>1</sup> It is a tubular hand microscope of the size and pattern of a fountain-pen, allowing for adjustable focus, having a magnification of from

40 × to 60 ×, and being finished in black and nickel and contained in a leather purse case. (The price is 15s. A small form in bright nickel finish is available at 4s. each.)

The EXCO DUST AND DRAUGHT EXCLUDER is a novel construction of wood, etc., which can be attached to the bottom of a door so as automatically to exclude draughts, dust, and driving rain.<sup>2</sup> It can be adapted to any size of door. (The price is 3s. 6d.)

The EXPANDA CUFF LINKS will be specially appreciated by medical practitioners.<sup>3</sup> The new pattern meets a real need. The links are so constructed as to keep the sides of each cuff close together, while if required the cuff can be speedily and easily drawn up without unfastening the link.

The CANDA IODINE PEN will be approved by doctors, nurses and ambulance men, for it provides a pocket companion, handy as a fountain pen, whereby tincture of iodine, one of the most popular and convenient of germi-



THE MEDIPRAC HAND MICROSCOPE.



THE CANDA IODINE PEN.

cides, is always available for immediate use.<sup>4</sup> It consists of a glass container with small aperture and screw top enclosed in a metal case, as

<sup>1</sup> The Mediprac Hand Microscopes are made by Raphaels, Limited, Hatton Garden, E.C. 1, and supplied by the Medical Practitioners' Union Agency, Ltd., 56, Russell Square, W.C. 1.

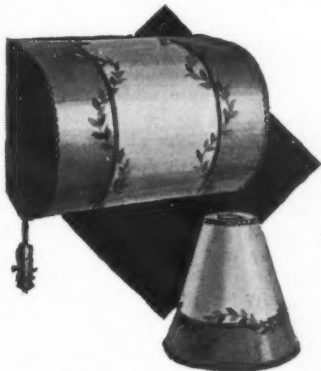
<sup>2</sup> Particulars regarding the Exco Dust and Draught Excluder can be obtained from the patentees and manufacturers, "Exco," Ltd., 4, Butler Street, E.C. 2.

<sup>3</sup> The Expanda Cuff Links are manufactured by Stratton and Co., Ltd., Balmoral Works, Birmingham.

<sup>4</sup> The Canda Iodine Pen is supplied by Clay and Abraham, Ltd., 87, Bold Street, Liverpool.

indicated in the accompanying figure. (The price is 1s. 2d. post free.)

The LITLUX NON-GLARE BED LIGHT is a boon to all who desire effective illumination for reading and working. It will appeal specially to those who enjoy the delights of reading in comfort in bed.<sup>1</sup> For the sick and for bed-fast invalids this artistic and hygienic invention will be invaluable. This novel bed light fixed to head-rail enables the individual to rest in an island of soft golden illumination, and read or work without eye-strain. Each Litlux is complete, wired with lampholder and with plug and flex ready for immediate use anywhere provided an electric supply is available. The Litlux is supplied in a series of sizes and shapes all artistically constructed. (The prices range from 16s. to £3.)



THE LITLUX NON-GLARE BED LIGHT WITH PENDANT SHADE.

BALNEO PRODUCTS are now available in forms which permit of a modified spa treatment being conducted at home.<sup>2</sup> They include the Reichenhall Natural Drinking Salts evaporated from the water of the Emperor Charles Spring, which have been found of service in various forms of catarrh of the respiratory passages and other mucous membranes. The Balneo Brine Bath Salts provide a ready and effective means for the preparation of a refreshing and stimulating bath.

SOLIDIFIED PEROXIDE OF HYDROGEN is now available in convenient stick form, enclosed in dainty screw-top container.<sup>3</sup> This hygienic and therapeutic novelty will be invaluable to doctors, nurses, and patients, providing peroxide of hydrogen in a compact, portable, and reliable condition for immediate use in dealing with cuts, stings, bleeding points in shaving, and for the bleaching of hair, or the removal of cigarette stains on the fingers and the like.

BOVRIL, particularly in the form known as Invalid Bovril, is an invaluable nutrient and stimulant for use in hospitals, sanatoria, nursing homes, open-air schools, as well as for administration to patients, invalids, and delicate folk in their own homes.<sup>4</sup> Invalid Bovril contains 16 per cent. of mineral matter, 25.50 per cent. of true proteids, 4.15 gelatinous albumenoids, and 29.30 of meat bases and extractives. (Invalid Bovril is sold in bottles: 2 ozs., 1s. 4d.; 4 ozs., 2s. 5d.; 8 ozs., 4s. 7d.; but special rates can be quoted for hospitals, sanatoria, etc.)

<sup>1</sup> An illustrated booklet showing the various forms of the Litlux can be obtained on application to the sole manufacturers, Louis Darniere and Hamlyn, Ltd., 23, Newman Street, Oxford Street, W. 1.

<sup>2</sup> Full particulars regarding the Balneo preparations can be obtained from Balneo Products (London), Ltd., 173, Westbourne Grove, W. 11.

<sup>3</sup> Solidified Peroxide of Hydrogen is supplied by Arthur H. Cox and Co., Ltd., 93, Lewes Road, Brighton.

<sup>4</sup> Full particulars regarding Invalid Bovril may be obtained on application to Bovril Limited, 148-166, Old Street, 73-77, Bunhill Row, and 2, 4, and 6, Banner Street, E.C. 1.

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From the Crookes Laboratory has been issued the COLLOSOL FORMULARY DESK CABINET for use on the consulting-room table.<sup>1</sup> It contains the nucleus of a set of collosol prescriptions.

Messrs. Cadbury Brothers, with their unrivalled Bournville Cocoa and Chocolate Preparations, render a valuable service to all sorts and conditions of men.<sup>2</sup> We would here direct special attention to the value of the Bournville products in the treatment of tuberculous subjects, and particularly in the up-bringing of consumptive and tuberculously disposed children and adolescents. The Bournville cocoa and chocolate provides ideal nutrient beverages. The Dairy Milk Chocolate and many other delightful chocolate confections are particularly to be commended for use in hospitals and sanatoria, in schools, and elsewhere. The "King George," "Princess Elizabeth," and other dainty artistic boxes of chocolates make ever welcome presents. All the Bournville specialities are manufactured under ideal factory conditions and scientifically directed control.

Fox's GLACIER MINTS is a sweet which is suited both for the healthy and the sick.<sup>3</sup> They are valuable in flatulence and other digestive troubles, and are specially soothing in throat cases. Fox's BARLEY SUGAR and Fox's FRUITS are ideal for invalids and children, being delightfully flavoured and free from all injurious elements. All the Fox products are sweetmeats of the highest quality, and can be prescribed without reserve.

GOLDEN MALTEX, BARLEY SUGAR, AMBROSIA MILK CHOCOLATE, and other confections manufactured by the house of Pascall, are excellent preparations for tuberculous and tuberculously disposed children and older patients.<sup>4</sup> These pure, delicious, and thoroughly reliable forms of sweetmeat provide really effective nutrients as well as delicious confections; they are essentially energizers and true stimulants.

ABDULLA CIGARETTES—Turkish, Egyptian, and Virginian—are not only great favourites with many doctors, but bring comfort to many tuberculous and other patients in hospitals, sanatoria, nursing homes, and in their own habitations. For consumptives and many other subjects it is essential that the quality and quantity of the cigarettes smoked should be carefully regulated. Among the many varieties of cigarettes now popular there are none better or so reliable as those that bear the name of Abdulla. These can now be obtained in charming artistic gift cabinets, which provide ideal presents for doctors, patients, and other cigarette smokers.<sup>5</sup>

<sup>1</sup> A Collosol Formulary Desk Cabinet may be obtained by any medical reader of this *Journal* free of charge on application with professional card being made to the Crookes Laboratory (British Colloids, Ltd.), 22, Chenies Street, W.C. 1.

<sup>2</sup> A copy of "The Factory in a Garden," together with any information regarding the Bournville products, can be obtained on application to Cadbury Brothers, Ltd., Bournville, Birmingham.

<sup>3</sup> Full particulars regarding Fox's Glacier Mints and other Fox specialities can be obtained on application to the makers, Fox's Glacier Mints, Ltd., Acme Confectionery Works, Oxford Street, Leicester.

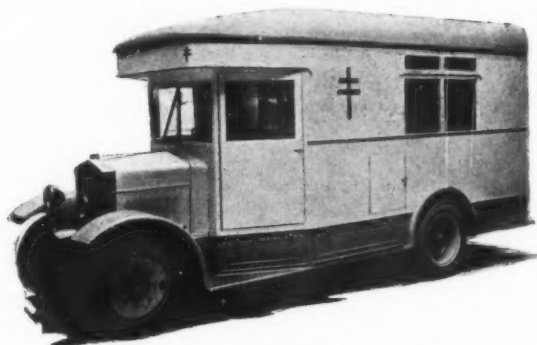
<sup>4</sup> Full particulars regarding the Pascall products can be obtained from James Pascall, Ltd., Blackfriars Road, S.E. 1.

<sup>5</sup> An illustrated booklet under the title of "Cabinet Secrets," giving particulars of the various Abdulla collections, can be obtained on application to Abdulla and Co., Ltd., 173, New Bond Street, W. 1.

## THE OUTLOOK.

## A TRAVELLING TUBERCULOSIS DISPENSARY.

THE well-known Fiat Motor-Car Company, the headquarters of which are at Turin, is participating in the campaign against tuberculosis. The company has recently presented to the Red Cross Society at Rome a unique travelling dispensary equipped with the latest appliances for fighting tuberculosis. Through the courtesy of the Fiat Company we are able to give illustrations of the exterior and interior of the caravan. It is intended that vehicles of this type shall be put into general service throughout the world, and that they shall enable the tuberculosis campaign to be extended into rural districts and remote mountain villages of Italy, where neither doctors nor hospitals exist, and where tuberculous disease finds fertile breeding grounds. Enquiries have been received from America, Belgium, Balkan States,



THE FIAT TUBERCULOSIS MOTOR-CAR.

On the side of the caravan is the red cross antituberculosis symbol.

and other countries for motor dispensaries of the type indicated in the accompanying illustrations. The running cost is low, for under normal circumstances, with the van working in a radius of twenty miles, about twenty visits can be made in one day at a cost of about two shillings per consultation. Tuberculosis officers in many districts in Great Britain and Ireland would welcome such an aid to the tuberculosis service. The chassis is fitted with an all-metal body, having the driver's compartment in front and a commodious dispensary behind. The scientific equipment has been supplied by the Itan Company of Milan, and comprises a complete X-ray installation, microscope table, cinematographic apparatus, which provides for the illustration of popular lectures, and all essentials for diagnosis. To avoid the danger of diffused radiation a protected tube has been adopted, and an "antix" rubber protector screens off secondary rays. All parts of the X-ray installation which come into contact with the patient are covered with easily changeable or disinfected paper and celluloid screens.



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The apparatus carrying high-tension current is insulated from surrounding objects. It is quite impossible to touch wires, and metal parts are earthed. The electric generator is placed outside the car, alongside the chauffeur. Sufficient current is available for an X-ray photograph of the thorax to be taken in the fraction of a second. The stores for the photographic plates and slides are fitted with electric safety locks connected to the controller of the X-ray apparatus, so that,



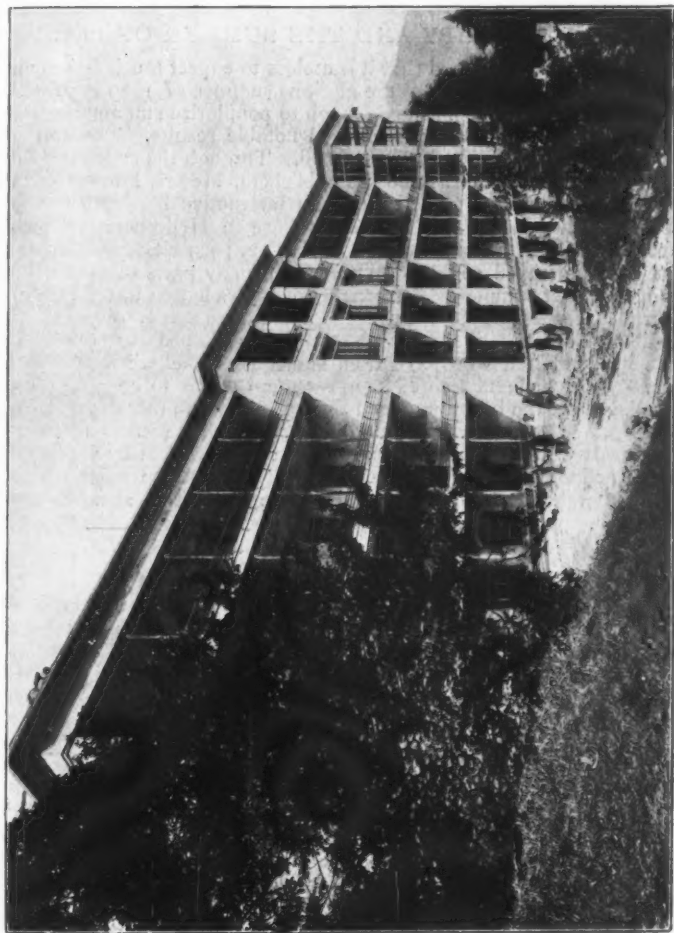
INTERIOR OF THE FIAT TUBERCULOSIS MOTOR-CAR.  
Appliances for clinical examinations and instruction are indicated.

should the controller forget to close the lockers, this electrical device rectifies the omission. During an X-ray examination the dispensary is lit by a special filtered ray lamp, which, while not interfering with the clearness of the image on the screen, does not leave the patient in the dark. The plant has been divided so that the X-ray apparatus can be carried into the patient's bedroom in case he is unable to leave the house. Professor Benedetti, head of the Antituberculosis Service in Ravenna, has described the new car and its equipment as "a practical tool of civilization." Further particulars may be obtained on application to the Fiat Motor-Car Company, Turin, or from Messrs. Fiat (England) Ltd., 43-44, Albemarle Street, W. 1.



AN INTERNATIONAL TUBERCULOSIS FACTORY  
CLINIC.

Dr. A. Rollier at Leysin has for the best part of his life dedicated all his powers to the development of the principles and practice of heliotherapy and the evolution and establishment of his world-famous



DR. ROLLIER'S INTERNATIONAL FACTORY CLINIC AT LEYSIN.  
The illustration indicates the stage reached at the end of the autumn.

tuberculosis clinics. During and since the Great War Dr. Rollier has devoted much time and thought to the establishment of occupation therapy for tuberculous subjects. And now at long last he is extending his work in this direction by the opening of an international clinic.

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Dr. Rollier's aims and plans in regard to work cure are explained and illustrated in a new brochure which has recently been published.<sup>1</sup> The factory clinic is now nearing completion, and we are enabled to present a picture of the building as it appeared last autumn. At a later date we hope to be able to publish a full account of the interesting adventure which is to be undertaken at Leysin.

### HELIO THERAPY AND THE SUMMER OF 1929.

It is sometimes claimed that it is useless to expect much from heliotherapy in this country. But the glorious summer of 1929 enjoyed in most parts of England has done much to popularize sun and air treatment, and has certainly accomplished notable results. The children especially have been greatly advantaged. Through the courtesy of the editor of the *Nursing Times* and the publishers, Messrs. Macmillan and Co., we are enabled to reproduce an instructive illustration which accompanied an article on "Nursing Care in Heliotherapy" which appeared in the *Nursing Times* for October 12, 1929. Scenes similar to that here portrayed could be witnessed in many parts of the country during the past summer. The benefits of sun radiation under carefully controlled conditions for tuberculous and tuberculously disposed children have been effectively proved. It is to be hoped that during the winter all children who have been subjected to heliotherapy will be carefully watched and records kept; for there seems to be good reason to believe that the benefits gained during sunny summer days will not be altogether lost during the dull and comparatively sunless months of winter. It would also appear reasonable to believe that by wisely conducted actinotherapy or the use of artificial light the good services of heliotherapy or natural sunlight may be at least in some measure conserved.

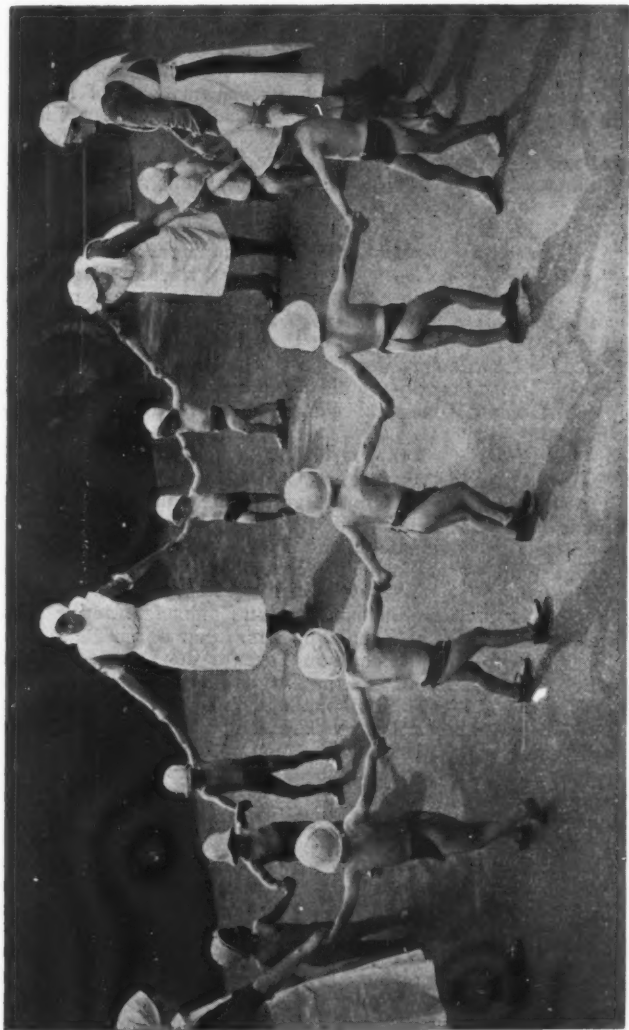
### TUBERCULOSIS IN CHILDHOOD.

Sir George Newman's latest report as Chief Medical Officer of the Board of Education contains much information of service to tuberculosis officers and others interested in tuberculous disease as met with in early life.<sup>2</sup> In 1928 there were 36,623 deaths at all ages in England and Wales attributed to tuberculosis, and of these 2,173 deaths occurred in young subjects between the ages of five and fifteen years. There were in addition 2,649 deaths from tuberculosis in children under five years of age. According to available returns there were on December 31, 1928, no less than 7,208 children of school age suffering from various types of tuberculosis who were not attending school. Sir George Newman urges the importance of using all the facilities of the school medical service in securing the early detection of tuberculous disease. "If in doubt the case should be treated as 'suspected,' and either subjected to a short term of institutional observation or placed under super-

<sup>1</sup> "The International Factory Clinic for the Treatment by Sun and Work of Indigent Cases of 'Surgical' Tuberculosis." By Auguste Rollier, Surgeon-Director of the Heliotherapeutic Establishments at Leysin. Pp. 52, with 107 figs. and bibliography. Lausanne: Librairie Payot et Cie. 1929. Price 3s.

<sup>2</sup> "The Health of the School Child: Annual Report of the Chief Medical Officer of the Board of Education for the Year 1928." Pp. 172. London: H.M. Stationery Office, 1929. Price 1s.

vision in an open-air school or elsewhere. All cases of fatigue, wasting, loss of weight, anaemia, and irregular temperature, especially if following measles or whooping-cough, should be specially examined



CHILDREN UNDERGOING HELIOTHERAPY, OR NATURAL SUNLIGHT TREATMENT.

The photograph shows small children playing ring-a-roses at the Leytonstone Children's Home. It will be noted that the head of each child is protected by a sun-hat.

for tuberculosis." It is good to find that "increased attention is being given to a closer co-ordination of anti-tuberculosis agencies, and to a wider use of the tuberculosis officer and of ancillary institutions."

## NOTES AND RECORDS.

The Executive Committee and the Council of the International Union against Tuberculosis met on June 19 and 20, 1929, Professor Frølich (Norway) presiding on the first day and Professor Paolucci (Italy) on the second day. Decisions were taken concerning the organization of the next International Conference, which will be held at Oslo, August 12 to 15, 1930, under the chairmanship of Professor Frølich (Norway). The following subjects have been selected for discussion: (1) *Biological subject*, "Vaccination against Tuberculosis by Means of the B.C.G." The opening report to be presented by Professor Calmette (Paris). (2) *Clinical subject*, "Thoracoplasty in the Treatment of Pulmonary Tuberculosis." Opening report to be presented by Professor Bull (Oslo). (3) *Social subject*, "Teaching of Tuberculosis to Undergraduates, and Post-Graduate Courses on Tuberculosis." Opening report to be presented by Professor His (Berlin). After the principal *rapporteur* has read his paper, ten speakers nominated by the Executive Committee in accordance with the proposals submitted by member associations of the Union will open the general discussion. Full particulars regarding the Seventh Conference of the International Union can be obtained on application to Secretariat de l'Union, Avenue Velasquez 2, Paris; Comité d'Organisation de Conference, Cort Adelers Gate 6, Oslo, Norway; and the Secretary, National Association for the Prevention of Tuberculosis, Tavistock House (North), Tavistock Square, W.C. 1. The following films have been placed at the disposal of the International Union for educational propaganda: (1) "The Prevention of Tuberculosis by Hygiene and B.C.G. Vaccination (Calmette-Guérin Bacillus)." (2) "The Prevention of Tuberculosis in Cattle by the B.C.G. Method (Calmette-Guérin Bacillus)." (3) "L'Œuvre du Placement familial des Tout-Petits (Society for the Boarding-out of Infants amongst Families)." A report was submitted to the Council by Drs. Léon Bernard and Lamy (Paris) on "The Vermees Inoculation Test for the Diagnosis of Pulmonary Tuberculous Lesions and the Estimation of their Activity."

The Ministry of Health, Whitehall, S.W. 1, has issued as Memo. 122 C/T, "A New Tabular Statement regarding the Cost of the Treatment of Tuberculous Patients in Residential Institutions." In more than one-half during the past two years the total cost per patient-week has increased. Local authorities are directed to pay special attention to the question of keeping the beds in their institutions filled to the greatest possible extent.

The Ministry of Health has issued Memorandum 131 B/T, providing an analysis of work carried out during the year 1928 under the schemes of local authorities for the treatment of tuberculosis, as shown in the returns furnished in accordance with Memorandum 37/T.

In connection with the proposed visit to Canada and the United States under the scheme elaborated by the Sun Life Insurance Company, who have offered fifty scholarships of £100 each for medical men in this country engaged in tuberculosis work, an itinerary has been issued, extending from August 8 to September 12. The inclusive cost is estimated as not more than £200. Particulars from Dr. E. Ward, Withycombe Lodge, Torquay Road, Paignton, Devon.

The Joint Tuberculosis Council have arranged for a post-graduate

course in relation to tuberculosis, to be held in the X-ray department of the Hospital for Consumption and Diseases of the Chest, Brompton, S.W. 3, January 27 to February 2, under the general direction of Dr. Stanley Melville. Particulars from Dr. William Brand, Tavistock House (North), Tavistock Square, W.C. 1.

The Ministry of Health has issued a 52-page report on "The Purification of the Water of Swimming Baths." It is published by H.M. Stationery Office (price 1s.).

The Health and Cleanliness Council, the headquarters of which are at 5, Tavistock Square, with Miss Norah March, B.Sc., as secretary, are rendering notable service by the issue of reliable material for effective educational health propaganda. The Council have recently issued a number of fresh booklets containing material for pageants, plans, and picture books, etc., for children, all inculcating lessons in hygiene. The new posters are in every way admirable. The splendid Health Calendar for 1930 should be available in all clinics, welfare centres, and the like. Medical officers of health, tuberculosis officers, and others engaged in health services should apply for copies of the Council's publications, applications for free supplies being invited from responsible persons engaged in educational health work.

The Hellenic Travellers' Club, the headquarters of which are at 3, Albany Courtyard, Piccadilly, W. 1, exists to promote visits to the littoral of the Mediterranean and elsewhere by those interested in classical studies and archaeological research. The President is the Right Hon. H. A. L. Fisher, D.Litt., Warden of New College, Oxford; the Hon. Secretary is the Rev. R. H. Lightfoot, M.A., and the Assistant Secretary is Miss Edith Crowdy, C.B.E. The new volume of the Proceedings of the Club is a collection of lectures, studies, and records provided by distinguished educationists and others who have recently participated in the special cruises of the Club.<sup>1</sup> The book is delightfully illustrated.

Doctors, educationists, and other professional men and women desiring to visit Switzerland this winter and participate in winter sports will be well advised to join the Public Schools Alpine Sports Club and secure a copy of the new Year Book, which contains particulars and illustrations of all the available centres.<sup>2</sup> A list of members is provided.

Alpine Sports, Ltd., issues an illustrated booklet, "Alpine Sports," which contains excellent illustrations and particulars of many of the chief winter sports centres in Switzerland.<sup>3</sup>

Medical advisers and others who find it convenient to make use of the numerous excellent motor-coach services now available in this country will do well to procure a copy of the new Road Travel A.B.C., which is issued monthly, providing particulars regarding all essential points in connection with motor-bus services in Great Britain.<sup>4</sup>

The *Photographic Journal*, published monthly by the Royal Photo-

<sup>1</sup> Proceedings of the Hellenic Travellers' Club, 1929. Pp. 202. London: 3, Albany Courtyard, Piccadilly, W. 1.

<sup>2</sup> Public Schools Alpine Sports Club Year Book. London: 2, Albany Courtyard, Piccadilly, W. 1.

<sup>3</sup> A copy of "Alpine Sports" for the season 1929-30 can be obtained on application to 5, Endsleigh Gardens, W.C. 1, or 2, Albany Courtyard, Piccadilly, W. 1.

<sup>4</sup> Road Travel A.B.C. Guide of Great Britain. London: Road Travel Publications, Ltd., 37, Golden Square, W. 1. Price 6d. monthly.

graphic Society, 38, Russell Square, W.C. 2, should be in the hands of all photographers, both professional and amateur. The November issue contained beautiful reproductions of some of this season's best exhibits of the R.P.S.

Medical advisers and others having to select health and holiday stations or schools in the South and West of England will be grateful to the Southern Railway for their excellent series of guides and booklets. Among them is an illustrated Directory to Schools on the Southern Railway, and including schools in the Channel Islands and on the Continent; it has been prepared by S. P. B. Mais, M.A., sometime master at Sherborne and Tonbridge. "The Peerless Riviera" is a charming guide-book to health stations in the South of France. "Some Friendly Fairways," by E. P. Leigh-Bennett, should be read by every golfer. "Winter Holidays in Southern England" contains serviceable data for invalids and others wintering along the south coast of England.

Recent retirements from the medical staff of the Ministry of Health have involved a redistribution of the work of the department. In the place of Dr. F. J. H. Coutts, C.B., Senior Medical Officer for Tuberculosis, Venereal Diseases, and General Institutional Therapy, the Minister has appointed Dr. A. S. MacNalty as Senior Medical Officer, and Dr. J. Alison Glover, O.B.E., Deputy Senior Medical Officer. In the place of Dr. A. W. J. MacFadden, C.B., the Minister has appointed Dr. Thomas Carnwath, D.S.O., and the food section has been enlarged to include therapeutic substances, medical aspects of water supply, sewage disposal, etc., and the administration of the Local Government Act in London.

Miss F. T. Redl, who for the last sixteen years has been head of the nursing staff at the Brompton Hospital for Consumption, is now resigning the matronship. A portrait and an account of the hospital appears in the *Nursing Times* on December 21, 1929.

The headquarters of the National Association for the Prevention and Treatment of Tuberculosis are now situated at Tavistock House (North), Tavistock Square, W.C. 1.

We are glad to welcome the new magazine *Clean Air*,<sup>1</sup> which is to serve the interests of the National Smoke Abatement Society, which exists to abolish the smoke evil. The first number is full of promise and contains a suggestive article by the Right Hon. Lord Newton entitled "Towards Clean Air."

*Commonhealth* is the title of a new popular magazine issued by the Tuberculosis Committee of the Belfast Corporation. It deals with means for the prevention of tuberculosis and the maintenance of the general health of the community. Dr. Andrew Trimble, the chief tuberculosis officer for Belfast, is the editor.

*The Izal Bulletin* is a new review relating to subjects connected with disinfection and disinfectants. It is issued monthly from the research laboratories of Newton, Chambers and Co., Ltd., Thorncliffe, Sheffield.

The Tuberculosis Association announces discussions to be held January 17, March 18 and May 16.

<sup>1</sup> *Clean Air* is published quarterly by the National Smoke Abatement Society, the Central Office of which is at 23, King Street, Manchester, with London office at 71, Eccleston Square, S.W. 1. The annual subscription is 2s. 6d., post free.